

# AMATEUR RADIO

MAY-1962

JC/KH



VICTORIA

TELEPHONE :  
88 8241, 88 4188  
FAX : 80

PREMIER'S DEPARTMENT  
MELBOURNE. C.2

22nd January, 1962

Dear Sir,

Now that the danger seems to have passed, may I convey to you the sincere appreciation of the Government for the part played by your organization in the recent bush fire.

I understand from the Chief Fire Officer of the Country Fire Authority that the radio equipment you so readily offered was of great assistance to him, and that the efforts of your operators contributed in no small measure in the vital task of covering the area with communications.

I would be glad if you would accept my personal grateful thanks for your public spirited action in this emergency, and if you would convey to all concerned the sincere appreciation of the Government for the part they played in this disaster.

Yours faithfully,

  
A. G. B. Smith  
Deputy Premier.

The Secretary,  
Wireless Institute of Australia  
(Victorian Division)  
478 Victoria Parade,  
EAST MELBOURNE



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300 µA. movement. AC and DC voltages: 0-10, 0-50, 0-250, 0-500, 0-1000. Current ranges (mA.): 0-1, 0-100, 0-500 mA. Ohms range: 0-100,000 ohms. Size: 3 1/2 x 2 1/4 x 1 1/4 inches. Complete with leads.

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1A3	2/6	10a	£1	6SF5	7/6	3a	£1
1A5	5/-	5a	£1	6SF7	7/6	3a	£1
1A7GT	7/6	3a	£1	6SH7	4/-	5a	£1
1C7	3/-	7a	£1	6SJ7	12/6		
1D5GT	5/-	5a	£1	6SK7GT	12/6		
1D5	7/6	3a	£1	6SL7GT	12/6		
1F3	7/6	3a	£1	6SQ7	12/6		
1H4	5/-	5a	£1	6SR7	7/6	3a	£1
1H5	5/-	5a	£1	6T7	7/6	3a	£1
1H6	5/-	5a	£1	6V4	11/4		
1K4	5/-	5a	£1	6X5	10/-		
1K5	5/-	5a	£1	6Y6	5/-	5a	£1
1K7	5/-	5a	£1	6Z7	7/6	3a	£1
1L4	5/-	5a	£1	7A4	5/-	5a	£1
1M5G	5/-	5a	£1	7A8	2/-	11a	£1
1N5	5/-	5a	£1	7C5	5/-	5a	£1
1P5	2/-	10a	£1	7C7	2/-	12a	£1
1Q5	5/-	5a	£1	7E6	3/6	7a	£1
1S4	7/6	3a	£1	7W7	2/6	10a	£1
1S5	10/-			12A6	4/-	6a	£1
1T4	5/-			12AT7	7/6		
2A3	7/6			12SA7GT	10/-		
2A6	7/6			12AH7	5/-	5a	£1
2D21	15/-			12C5	5/-		
2X2	5/-	5a	£1	12H6	3/6		
3A4	10/-			12J5	5/-	5a	£1
3AP1	25/-			12K8	5/-	5a	£1
3BP1	35/-			12SF7	5/-	5a	£1
3Q5	5/-	5a	£1	12SG7	5/-	5a	£1
3Q4	10/-			12SK7	3/-	5a	£1
5V4G	15/-			12SQ7	5/-		
5Y3GT	13/9			12SR7	5/-	5a	£1
5Z3	17/6			14A7	3/6	7a	£1
6A3	7/6	3a	£1	11Z7	5/-	5a	£1
6A6	7/6			16Z5	5/-	5a	£1
6AG3	5/-			16Z6	5/-	5a	£1
6AG7	12/6			16Z9	5/-	5a	£1
6A35	7/6	3a	£1	30	1/3		
6AK5	15/-			35T	30/-		
6AM5 (EL91)	10/-			55	5/-		
6AM6 (EF91)	10/-			717A	7/6	3a	£1
6B4	10/-			725A	10/-		
6B7	10/-			80	10/-		
6B8	12/6			805	45/-		
6BE6	12/6			807	7/6	3a	£1
6C4	5/-	5a	£1	808	10/-		
6C5	5/-	5a	£1	809	20/-		
6C6	5/-	5a	£1	815	15/-		
6C8	10/-			830B	15/-		
6D6	5/-	5a	£1	832A	19/6		
6E5	5/-	5a	£1	866	32/6		
6F5	7/6			954	5/-	5a	£1
6F6	12/6			955	5/-	5a	£1
6F7	10/-			956	5/-	5a	£1
6F8	5/-			958A	2/6	10a	£1
6G6	7/6	3a	£1	2051	5/-		
6GR6	17/6			9003	7/6	3a	£1
6H6 Glass	2/6			AV11	2/11		
6H6 Metal	3/6			DL75	2/6	10a	£1
6J6	10/-			EA50	2/-	10a	£1
6K7	5/-	5a	£1	EC91/6AQ4	10/-		
6K8G	20/-			EF36	5/-	5a	£1
6K8GT	12/6			EF39	5/-	5a	£1
6L7	5/-	5a	£1	EF70	5/-	5a	£1
6R7	7/6	3a	£1	EF72	5/-	5a	£1
6SA7	7/6			EF73	5/-	5a	£1
6SC7	7/6			EL41	10/-		

## BC433-G COMPASS RECEIVERS

Freq. range 200 Kc. to 1750 Kc., 14 valves—6.3 volt series, 6K7, 6J5, etc. I.F. freq. 142.5 Kc. Clean condition.

Priced only £10/0/0

Flexible cable & control box 30/- extra.

## JAPANESE METERS

0-1mA. square, 1 1/2" hole, MR-2P .. £2  
0-1 mA., 2 1/2" square, MR-52 .. £2  
0-1 mA., 3 1/2" round, MR-65 .. £1/15/0

## PIEZO CRYSTAL TRANSMITTERS

Price only

57/6



Stand to suit

15/- extra.

Model BM5 (Illustrated). Response 100 to 1000 c.p.s., fitted with 6 ft. cable and phone plug with on-off switch. Can be used on stand for hand use.

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3-4 Mc. range .. £7  
7-9 Mc. .. £6

## 5.5 Mc. VIDEO COILS

Contains slug-tuned coil former. 6d. each.

## OA79 and OA81 DIODES

Well known make. Brand New.

To Clear—2/6 each

## SCOPE SOLDERING IRON TIPS

Instrument and wedge type tips, 1/- ea. or 5/6 packet of 6. Carbon elements, 1/- ea. or 5/6 packet of 6.

## R1155B COMMUN. RECEIVER

Frequency range 75 Kc. to 18 Mc. New condition. Few only, £25.

## FILAMENT TRANSFORMER

240v. primary, secondary: 5v. at 2 amp. and 10v. at 3 amp. 35/-.

## No. 122 COMPONENTS

Headphone and Microphone Sets. Good condition 25/- set  
Aerial Pack, complete with aerial, base, ropes, pegs and wire 50/- to clear

## TRANSISTOR POWER SUPPLIES

A. & R. Types PS21 and PS25. Prices on Application.

## VALVES—NEW & USED (Continued)

EX91	5/-	VR102	5/-	5a	£1		
QV04/7	15/-	VR103	5/-	5a	£1		
QV04/10	15/-	VR136	2/-	12a	£1		
QV06/40	97/6	VR150	10/-				
RL18	7/6	3a	£1	VT52	5/-		
TT15 (CV415)	5/-	VT127	4/11	5a	£1		
UL41	7/6	3a	£1	VT501	7/6	3a	£1
VR53	5/-	5a	£1	Y65	5/-		
VR101	5/-	5a	£1				

# "AMATEUR RADIO"

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## OUR COVER

At 6 p.m. on 14th January, 1962,  
the Victorian Country Fire Authority  
requested the W.I.A. to provide a  
communication link from Mt. Dan-  
derong to Melbourne (about 25  
miles); by 8 p.m. this link was oper-  
ating and providing valuable service  
during the disastrous bush fires  
which were sweeping the area. Two  
metre f.m. mobile car phone sets on  
145.8 Mc. were used, due to a variety  
of circumstances.

Regrettably, due to space limita-  
tions, the full story is not told.

The known Amateurs who took  
part in this vital community service  
were: VK3s ZCB, ZCZ, ZEO, ZBW,  
CS, BX, QU, ADW, ZCO, ZJY, ZIC,  
ZBF, ZPT, ZHT, OF, ZW, ZGP, ZJC,  
YS, QO, DF, ZGO, ZGM, ZBJ, ZKK,  
ZDK, ZGH, ZEC, ZDE, ZIR, ARZ,  
ZFK, ZGW, YA, and ZU.

Our cover is a replica of the official  
tribute to the Amateur Service, which  
gave unsparingly in long hours of  
duty, a true example of community  
service.

We are no longer "Hams".

## COMMENT

★

### THE GROWTH OF AN ORGANISATION

By the time this issue of the magazine is printed, the 26th Annual Convention will have come and gone, and the Federal Councillors returned to their respective Divisions to report the results of discussions. Although the work of the Convention will have been strenuous and time-consuming with more than 60 items to discuss, the real work is that arising from the Convention —work for the Executive to carry out the wishes of the Council and work for the Councillors in implementing the various decisions. Two items of great importance on the agenda deal with differing proposals for a new Federal Constitution.

One of these is based on a Federal Company of which the Divisional Companies or unincorporated associations may become members, and the other is in essence a Federal body to which individuals may subscribe as members but for administrative purposes be organised into Divisions, as at present. We cannot predict as this early stage which of these two alternatives will be accepted by the Federal Council; but whatever the outcome, the decision will only be made after due and careful consideration and in accordance with the wishes of the majority of the Divisions.

The Institute has maintained an unspectacular, though steady, growth over the years, but recent events in various spheres of our activities point to the fact that the present Institute organisation is about to emerge from its adolescence into adulthood. Constitutionally, the Institute on a Federal plane has been weak, but the findings of this Convention on the two items aforesaid, could well set the pattern for a stronger Federal body which is capable of expansion and at the same time lay the foundation on which our administrative successors may build a solid structure.

Our keyword should be progress, and you, the member, must make every effort possible and within your particular abilities to assist in the growth of our organisation. You can do this in many ways—come regularly to your Divisional meetings, volunteer to help when required and, most important of all, air your opinions to your Council. If you determine to do even these few things, then our Institute will not look back but should continue to grow into a mature organisation of which we may be justly proud.

FEDERAL EXECUTIVE, W.I.A.

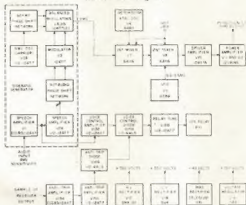
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# HALLICRAFTERS



HT-37 Block Diagram



## MODEL HT-37 TRANSMITTER

Hallcrafters new HT-37 employs a carefully designed phasing type sideband generator developed by the famous team which produced the HT-32A. At signal frequency all tubes, most components and voltages are equal to the HT-32A. The wealth of production and engineering skills which has made the HT-32A the most wanted transmitter now provides you the best in a phasing unit at a moderate price. The HT-37 is a complete table top, high efficiency Amateur band transmitter providing s.s.b., a.m. or c.w. output on 80, 40, 20, 15 and 10 metres.

### FEATURES

- ★ 144 watts plate input (p.e.p. two-tone).
- ★ Five-band output (80, 40, 20, 15, and 10 metres).
- ★ All modes of transmission—c.w., a.m., and s.b.
- ★ Unwanted sideband down 40 db. at 1 Kc.
- ★ Distortion products down 30 db. or more.
- ★ Carrier suppression down 50 db.
- ★ Modern styling.
- ★ Instant c.w. cal. from any mode.
- ★ Both sidebands transmitted on a.m.
- ★ Precision v.f.o.
- ★ Rugged heavy duty de luxe chassis.
- ★ 52 ohm pi network output for harmonic suppression.
- ★ Dual range meter for accurate tuning and carrier level adjustment.
- ★ Ideal c.w. keying.
- ★ Full voice control system built in.
- ★ Tubes and functions:—
  - Two 6146s power output amplifiers.
  - 6CB6 variable freq. osc.
  - 12BY7 r.f. driver.
  - 6AH6 first mixer.
  - 6AH6 second mixer.
  - 6AB4 crystal oscillator.
  - 12AX7 voice control.
  - 12AT7 voice control.
  - 6AL5 voice control.
  - 12AX7 audio amplifier.
  - 12AT7 audio amp. and carrier oscillator.
  - 12AT7 audio modulator.
  - Two 12AT7s balanced mod.
  - 5R4GY h.v. rectifier.
  - 5V4G i.v. rectifier.
  - OA2 voltage regulator.

#### Front Panel Controls, Functions and Connections:

- Operation: Power off, standby, Mox, Cal., Vox.
- Audio level 0-10.
- R.f. level 0-10.
- Final tuning: 80-40-20-15-10 mx.
- Function: Upper sideband, lower sideband, d.a.b., c.w.
- Carrier balance.
- Calibration level, meter range.
- Driver tuning 0-10.
- Band selector: 80-40-20-15-10 mx.
- High stability v.f.o.
- Microphone connector.
- Key jack.

#### Rear Chassis:

- Co-ax antenna connector.
- Line fuse.
- Control connector.
- A.c. power line cord.

Price (tax included) £331-17-6

Sole Australian Representatives:

## W.F.S. ELECTRONIC SUPPLIES CO.

225-7 VICTORIA RD., RYDALMERE, N.S.W. Phone 08-1715

Sole Victorian Agent: **ELECTRONIC SERVICES**, Douglas Street, Noble Park, Vic. Phone 746-8446  
 Sole South Aus. Agent: **TELEVISION & RADIOTRONIC CO.**, 11a Gays Arcade, Adelaide  
 Sole Queensland Agent: **GENERAL IMPORT DIST.**, 135 Lutzow Street, Wellers Hill, Brisbane  
 Sole West. Aust. Agent: **NEIL JAMES & CO.**, David Jones Arcade, Barrack Street, Perth.

# INDUCTANCE, CAPACITANCE, & RESONANCE

## AN "A.R." DATA SHEET

The following provides a collection of useful information regarding capacitance, inductance, resonance, and tank circuit design. In addition, data is provided regarding air wound coils.

### TANK CIRCUIT CAPACITANCE

The required tank circuit capacitance in any transmitter is:

$$C = \frac{3600 I_p}{f E_{pr}} \dots \dots (1)$$

where C = total circuit capacity in pF.  
 $I_p$  = total plate current of the valve(s) in mA.  
 $f$  = frequency in Mc.  
 $E_{pr}$  = plate to cathode voltage in volts.  
 (for a coil Q of 12)

### L AND C REQUIRED

The combination of inductance and capacity required for resonance in the main Amateur Service frequency bands is as follows; this is based upon the relationship—

$$LC = \frac{25330}{f^2} \dots \dots (2)$$

Amateur Service Frequency	LC Product in $\mu\text{H}$ & pF.
80 metres (3.5 Mc.)	2065
40 metres (7 Mc.)	517
20 metres (14 Mc.)	129
15 metres (21 Mc.)	57.4
11 metres (27 Mc.)	34.7
10 metres (29 Mc.)	30

Table 1.

Thus from equation 1 and equation 2, the required inductance and capacity for any Amateur band can be calculated.

Note that capacity refers to the total circuit capacity, and the required variable capacity will be less by the amount of capacity (i.e. the "strays") inherent in the circuit.

E.g.: A 10 pF. condenser would require an inductance of 206.5  $\mu\text{H}$ . to resonate at 3.5 Mc. ( $10 \times 206.5 = 2065$ , see Table 1). A coil of 5  $\mu\text{H}$ . would require a tuning capacitance of 6 pF. for resonance in the 10 metre band ( $3 \times 6 = 30$ ).

### WIRE GAUGE

In designing tank circuit inductances it must be remembered that the circulating current in the final tank will be  $QI_p$ , where Q is the quality factor ( $\omega L/R$ ) and  $I_p$  is the measured plate current. Therefore the gauge of wire used in the plate circuit inductance must be heavier than required solely to carry the plate current normally considered flowing in the circuit.

Table 2 takes all factors into account and suggests wire sizes which are adequate for conventional design.

Frequency of Circuit	DC Power Input	Wire Gauge SWG
Up to 3.5 Mc.	300 watts	16
3.5 to 7 Mc.	"	14
7 to 14 Mc.	"	12
14 to 21 Mc.	"	12
21 to 28 Mc.	"	10
Up to 3.5 Mc.	150 watts	18
3.5 to 7 Mc.	"	16
7 to 14 Mc.	"	16
14 to 21 Mc.	"	14
21 to 28 Mc.	"	12
Up to 3.5 Mc.	75 watts	24
3.5 to 7 Mc.	"	22
7 to 14 Mc.	or	20
14 to 21 Mc.	less	18
21 to 28 Mc.	"	16

Table 2.

### CONDENSER SPACING

In a plate modulated final p.a. the condenser must be able to withstand the applied d.c. plate voltage plus the modulation signal, thus the peak plate voltage rating required is about twice the applied d.c. plate voltage.

In Table 3 are suggested spacings for final plate circuit condensers. All shafts should be bonded direct to earth by a flexible lead to prevent any possibility of the operator being electrocuted in the event of a breakdown in insulation, or in the case of condenser being above earth, use an insulated coupling.

Applied DC Plate Voltage	Suggested Plate Condenser Spacing
2000 volts	0.150 inches
1000 "	0.05 "
750 "	0.03 "
500 "	0.015 "

Table 3.

### CAPACITY VARIATION

In any circuit, the required capacity variation ( $\Delta C$ ) to tune from a high frequency ( $f_h$ ) to a lower frequency ( $f_l$ ), both measured in Mc., is given by the following equation:

$$\Delta C = C [1 - (f_l / f_h)^2] \dots (3)$$

where C = total circuit capacity in pF.

### INDUCTANCE

The inductance of an air wound solenoid can be calculated from its dimensions, and for optimum Q ( $\omega L/R$ ) the ratio of length to diameter should be about twice.

$$L (\mu\text{H}) = \frac{a^2 N^2}{9a + 10b}$$

$$\text{or } \frac{0.2 a^2 N^2}{3a + 9b + 10c} \dots \dots (4)$$

where a = coil diameter in inches.  
 b = coil length in inches.  
 c = wire diameter in inches.  
 N = number of turns.

Thus N/b gives the winding pitch in turns per inch.

Table 4 gives the details of coils made by various manufacturers, and may prove useful in designing a suitable coil. The information has been collated from current details supplied by the makers.

Manufacturer's No.	Reference	Len.	Turns	L
1	2	3	4	5
		in.	in.	$\mu\text{H}$
3301	404T	1/4	2	4 18 0.4
	406T			6 18 0.8
3302	408T	1-08	"	8 18 0.96
	410T			10 18 1.2
3303	418T	1-16	"	18 20 3.2
3304	422T			32 24 13.7
3305	504T		2	4 16 0.56
	506T			6 16 0.8
3306	508T	2-08	"	8 16 1.6
	510T			10 18 4.9
3307	516T	2-16	"	16 20 16.2
3308	522T			32 24 16.2
3309	504T		2	4 16 0.94
	506T			6 16 1.6
3310	508T	3-08	"	8 16 2.9
	510T			10 16 10.9
3311	516T	3-16	"	16 20 43.5
3312	522T			32 24 43.5
3313	504T		3	4 16 1.9
	506T			6 16 4.8
3314	508T	4-08	"	8 16 4.8
	510T			10 18 19.0
3315	516T	4-16	"	16 20 73
3316	522T			32 24 73
3317	1004T	1 1/4	10	4 14 2.56
	1006T			6 14 9.4
3318	1008T	5-08	"	8 16 9.4
	1010T			10 18 37.5
3319	1016T	5-16	"	16 18 145
3320	1204T		1 1/4	10 14 4.5
	1206T			6 14 17.2
	1208T			8 16 72
	1210T			10 18 280
	1216T			16 20
3321	1404T	1 1/4	14	4 14 4.5
	1406T			6 14 17.2
3322	1408T			8 16 72
	1410T			10 18 280
3323	1406T			16 20
3324	1604T	2	16	4 12 6.4
	1606T			6 14 16
3325	1608T			8 14 16
3326	1610T			10 16 16
3327	1616T			16 16
3328	2004T	2 1/4	10	4 12 6.4
	2006T			6 12 16
3329	2008T			8 14 16
	2010T			10 16 16
	2404T	3	10	4 10 4
	2406T			6 12 15
	2408T			8 14 16
	2410T			10 14 16

Reference 1—Barker and Williamson, U.S.A.

Reference 2—Illumitronic Engineering, of U.S.A. It will be noted that the first two figures of the manufacturer's number state the coil diameter in eighth inches, and the last two figures give the winding pitch in turns per inch. Add an "8" suffix to all three-figure coil numbers, thus (0804T gives a coil 8/8 (1") diam. x 4 t.p.i. The trade name is "Air Dux".

Reference 3—William Willis Pty. Ltd., 428 Elizabeth St., Melbourne.

Note.—The gauge refers to B. & S. and corrections should be made if S.W.G. wire is used.

\* Length 3 inches only for "Willis" coils.

† Length 2 inches only for "Air Dux" coils.

‡ 20 gauge for "Air Dux" coils.

§ Length 10 inches for "Air Dux" coils.

Table 4.



# FOR BEGINNERS:

## A 2-VALVE SUPERHET. WITH BANDSPREAD & B.F.O.

Construction Hints and Alignment Data by A. F. W. Haddrell\*

THIS set is designed for a.m. and c.w. reception using multigrad valves, one a pentagrid converter (6K8) and the other a double triode (6SN7). The intermediate frequency is approx. 1600 Kc. A double triode (6SN7) performs the functions of regenerative detector and audio amplifier.

L2 is the aerial coupling coil and the r.f. circuit (L1-C1) is tuned to the signal frequency. C7 is a by-pass across the 1.5v. battery, used to bias the grid of the 6K8 and one half of the 6SN7 used as an audio amplifier.

The local oscillator circuit is formed by L3, C3 and C4. Condenser C3 is for band setting with C4 for bandspread.

The i.f. tuned circuit (or regenerative detector circuit) is L5 C5. (This needs to be a high C circuit to obtain good stability). L6 is the tickler coil for regeneration. (If L5 is wound to specification, it will be tuned to approx. 1600 Kc.) C2 is the regeneration control.

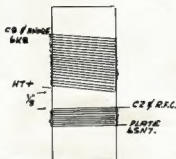
The second section of the 6SN7 is transformer coupled to the detector.

Looking on top of the chassis layout, from the front, the r.f. or input circuit is at left, with C1 below chassis. L1 and L2 are just behind it, and the 6K8 is to the rear of the coil. The oscillator padding condenser C3 is in the centre underneath the chassis and adjacent to the socket for L3-L4, with the 6SN7 to the chassis rear. At right, underneath the audio transformer T1, is the regeneration control C2. The bandspread condenser C4 is mounted on the front panel about 4" up from lower edge and a pair of terminals at the

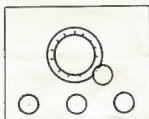
(Continued on opposite page)

\* 13 Reid St., South Morang, Vic.

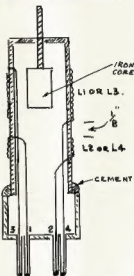
I.F. COIL



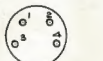
PANEL FRONT VIEW



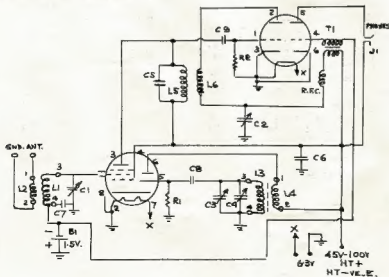
R.F. & OSC. COIL ARRANGEMENT



COIL LEADS TO BE DRESSED CLOSE TO SIDES OF FORMER.



VIEW UNDER COIL BASE



C1, C2, C3—140 pF. (ex Ham Radio).

C4—15 pF.

C5—240 pF.

C6—0.01  $\mu$ F.

C7—0.0047  $\mu$ F.

C8, C9—100 pF.

R1—47K,  $\frac{1}{2}$ W.

R2—1 megohm,  $\frac{1}{2}$ W.

L1, L2, L3, L4— $\frac{1}{4}$ " diam. See Coil Table.

L5—55 turns No. 30 en. close wound,  $\frac{1}{4}$ " diam.

L6—18 turns No. 30 en. close wound, same

former as L5.

B1—1.5 volt cell.

J1—Open jack.

RFC—2.5 mH. r.f. choke.

T1—Audio inter-valve transformer.

COIL TABLE

For L1 or L3

- Coil A—90 turns of No. 28 enamel, close wound.
- " B—65 turns of No. 28 enamel, close wound.
- " C—45 turns of No. 28 enamel, close wound.
- " D—24 turns of No. 28 enamel, spaced  $\frac{1}{4}$ ".
- " E—20 turns of No. 28 enamel, spaced  $\frac{1}{4}$ ".

For L2 or L4

- Coil A—50 turns of No. 30 enamel, close wound.
- " B—15 turns of No. 30 enamel, close wound.
- " C—15 turns of No. 30 enamel, close wound.
- " D—15 turns of No. 30 enamel, close wound.
- " E—15 turns of No. 28 enamel, close wound.

Frequency Range

1700-3200 Kc.	Coil A	Coil B
3000-5700 Kc.	Coil B	Coil C
5400-10000 Kc.	Coil C	Coil D
9500-14500 Kc.	Coil D	Coil E

side of the chassis are used for aerial and earth connections with a jack at the rear for headphones. No power supply is shown on the chassis, but 6v. for heaters and 45v.-100v. are required.

The chassis size for the set is 7" x 7" x 2" and the front panel is 9" x 9" in size.

The i.f. coil is constructed on a 3" diameter former with no core (see sketch).

The r.f. coils are constructed on 3" diameter formers (with iron cores) cemented to standard 4-pin plugs (see sketch).

Around the four-pin socket for the coils a screen from an old 1½" i.f. transformer should be fitted.

## ADJUSTMENTS

To test the receiver, apply power, and first try out the i.f. circuit. Put a coil in the h.f. socket only and both valves in their sockets and advance C2 from minimum capacity, when a soft hiss should be heard, indicating oscillation. If this occurs before approx. half capacity, remove turns from L6, but if a hiss is not heard add turns, after reversing connections to L6. It is not advisable to have oscillation commencing before mid-capacity.

Plug in an oscillator and r.f. coil for a band on which signals are likely to be heard. (Note coils are arranged so that only a minimum number are required, i.e. some coils are used on two bands.) Say coils C and D are inserted,

set C1 at mid-scale and turn C3 slowly around mid-scale until a signal is heard, then tune C1 for maximum strength. On lower frequency ranges, when it is possible to find two tuning spots on C1, the lower frequency peak is the correct one. The coils are so arranged that the local oscillator frequency is 1600 Kc. higher on the three lower ranges, and lower on the high range than the incoming signal frequency. (This circuit originally appeared in

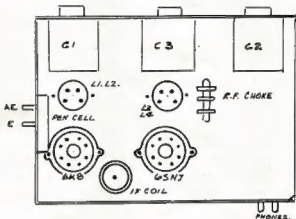
"QST" in 1942—Ed.) Iron cores are used to adjust this requirement.

The regeneration control can be set for maximum sensitivity whilst tuning, and the bandwidth control is set for fine tuning.

The power drain is of the order of 10 mA. (more modern valves such as 6U8, etc., could probably be tried to advantage).

If any points are not clear, a s.a.e. to the writer will bring a reply.

## UNDER CHASSIS VIEW



# MULTIBAND FOLDED DIPOLE

R. E. W. MAY,\* VK1PM

AS the sunspot cycle approaches its minimum level and our lower frequency Amateur bands become more useful, the problem for many of us is, how to fit the longer length of wire needed for the usual half-wave dipole into the available space. For instance, the normal 80 metre dipole requires about 134 feet between supports.

One simple and successful multiband antenna is the so-called "100 Foot Flat-Top", centre fed with open wire tuned line. A more recent version, known as the G5RV Multiband Antenna

("A.R.", Jan. 1961) uses co-axial transmission line.

The standard half-wave folded dipole is well known for the excellent match presented for 300 ohms line over a wide band of frequencies. However, this antenna normally will not work on even harmonics, that is, if it is cut for the 80 metre band it is not available on the 40, 20 or 10 metre bands, as a folded dipole.

The multiband folded dipole now described, may be regarded as a "cross" between the "100 Foot Flat-Top" and the half-wave folded dipole. It carries the advantages of both these types, plus an extra advantage of its own.

Firstly, it has the wide band properties of the folded dipole. It will operate efficiently on all bands above the fundamental with a small s.w.r. on the line for each band. It may be fed with open wire line, 300 ohm ribbon, or in G5RV style, with co-axial line (34 feet of open wire line, or 29 feet of 300 ohm ribbon connected from antenna, to any length of 72 ohm co-axial line). It requires only 80 to 100 feet between supports, for 80 metre operation and above.

Fig. 1 shows the basic design for the antenna, for operation on 80, 40, 20, 15 and 10 metres.

Although the antenna is shown as 100 feet in length, the radiation from about 10 feet at each end tends to cancel on the lower frequency bands. Therefore, up to 10 feet, or even more, may be turned down at each end without appreciable decrease in effective radiating height, so that the antenna may be strung between supports about 80 feet apart.

The radiating section may be made of ribbon, or of open wire as shown in Fig. 2. The resistive point on the open wire feed line occurs at 34 feet from the antenna, but for practical purposes, any length of transmission line may be used, as the s.w.r. is small on any band.

This antenna (Fig. 2) was the only one used by the writer, operating on the 80, 40, 20 and 15 metre bands, in the recent Remembrance Day Contest.

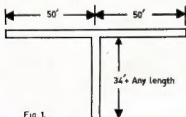


Fig. 1.

Fig. 1.—Multiband Folded Dipole, 80 to 10 mhz bands. Dimensions are not critical. 300 ohm ribbon may be used without regard for velocity factor.

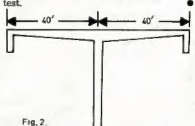


Fig. 2.

Fig. 2.—Open Wire construction for restricted space. Spacing between top and bottom radiating elements at centre of antenna allows for about 2 feet of sag when suspended at each end only. Spacing of feed line and turned-down end sections is as for normal open wire transmission line.

\* 39 Mehan Gardens, Narrabundah, Canberra.

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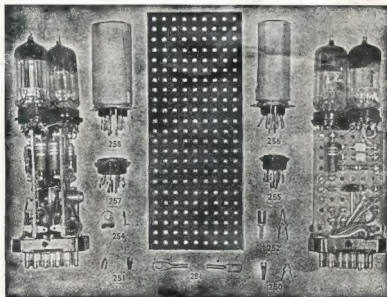
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# FOR 288 Mc. ENTHUSIASTS\*

R. G. ROPER, VK5PLU

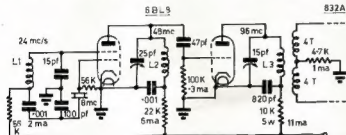
One tube (6BL6), output on 96 Mc., sufficient to drive an 832A tripler to 288 Mc., which will drive another as a final amplifier.

The circuit is not original, being an adaptation of the Jones' harmonic oscillator. However, particular attention has been paid to circuit parameters to enable disposals crystals (not special overtone cuts) to be used.

\* Reprinted from S.A. Division, W.I.A., Bulletin.

To make full use of the output available from the triode section doubler, inductive coupling is used, the grid coil of the 832A multiplier being copped (with g.d.o.) to self resonance with the tube's input capacity.

With sluggish crystals, decreasing the value of the capacitor C1 will increase the feedback. However, to minimise spurious oscillations, this value should be as large as possible, consistent with reliable starting.



## THE OSCAR II. PROJECT

It is hoped that Oscar II. will be launched in the late April, and the only differences between Oscar I. and Oscar II. are in the telemetering circuits. New data acquisition methods based upon measurements of doppler shift will enable you to compute all orbital parameters.

High gain beams become unnecessary as simple three or four element beams will suffice, even to a ground plane type. A simple type is shown in "QST" for March 1962. The launching time of Oscar II. cannot be given until the parent vehicle is in orbit. The same path will be used for orbit, North to South. So set your beams either to the North or South, and there is no need to move them at all; unless of course you are set up to really track Oscar from start to finish.

A simple converter will pick up Oscar just as well as the more elaborate ones. Remember that any reports are very important even to the simplest, providing you use the proper report forms. No reports will be used unless they are on the report forms.

I have written to all States and have sent a sample copy of the correct Oscar II. report forms. Now if these look too complicated, don't worry as there is a space there even for a strength report only, providing you give it in db. This is quite simple, for example, first check the reading on your S meter on noise. Say the noise is S3 for instance. Now when you hear Oscar come in, and say the S reading is S6 (assuming that the S unit equals 6 db.), then the report will be 18 db, and you enter this in signal strength above noise column No. 16 on your report form.

Another simple report you can give is the time you first heard Oscar. Record

the time in G.M.T., next record the peak signal strength, and then the time you last heard the signal in this orbit. Another very important observation you can make is the number of seconds for ten H.I's.

The next comes the Doppler frequency shift. This can be done in a very simple way. Make up a crystal oscillator, place a variable condenser across the crystal, calibrate it plus and minus a few kc., beat it against the signal from Oscar when you first hear it, and turn the dial as Oscar comes closer and read off the difference in frequency, and plot a curve which will resemble the letter S.

Another method is in an article in "QST", written by Don Norgaard, W6VMH, March issue. If you cannot understand the report form fully, take a look at the article by Ed Hilton in "QST" covering data acquisition.

Now chaps, there were 2,700 tracking reports on Oscar I. and 1,300 letters, but Australia only sent about four at the most. Yes, I know that a lot of you heard Oscar I. and tape recorded it, and so on, but how many took the trouble to compile the data they got, and sent it in? Don't let this happen this time. Let's give it the works. I know you will say I didn't know about it until too late, but this time most know about it in all States.

I must thank those fellows who wrote me, showing how keen they were, and I have sent all the information I have.

I suggest that each State print their own forms. I feel sure that the W.I.A. State Divisions are only too keen to help. I also thank the N.S.W. Division for their assistance.

Give this project all the publicity you can, as it is the greatest boost the Ham has had so far.

—VK2HO, Australian Co-ordinator.

## HINTS AND KINKS

### TUNING A MOBILE WHIP

The simplest way to tune a 40 metre mobile whip "nose-on" is to resonate it somewhere slightly below the centre of the phone band, say 7.0 megs, then after everything is firmly cemented down, giving rigid stability, the top section is trimmed 1" at a time until the s.w.r. in the co-ax reaches a minimum at 7.1 megs. (centre of phone band).

No matter what type of whip you may be using, 1" at the top represents approx. 30 to 50 Kc. At any one dimension of the whip, the exact point of resonance can be read off v.f.o. which is tuned for minimum s.w.r. (N.B. regulations).

—Clem Maloof, VK3AMA.

### CHEAP METAL CASES

Can't afford metal cases for your converters, etc.? Then do what I did. I used half a one-gallon gas can for my converter. These painted, and with the joint facing downwards, make excellent cases after extracting the end section with the handle attached to it.

—Brad Booth, VK3/ZL3.

### R.D. CONTEST AWARD WINNER

F.C.C. have advised that the call sign and name of R. J. Baty, VK9GP, was omitted from the results published in December issue in the awards section of the R.D. Contest.

He is the winner of the Award for VK9 with a total of 600 points in the open section.

### RADIO AURORA INCIDENCE

The following letter from the General Secretary of the Radio Society of Great Britain has been received by the Federal Secretary of the W.I.A. All replies to same are requested to be sent to David Rankin, VK3QV.

Dear Mr. Secretary,  
In connection with the analysis of I.G.Y. radio aurora information, the Society's Scientific Studies Committee are anxious to ascertain from your Society the dates, if any, when Australian Amateurs were able to use the aurora for 3 metre work. In particular the following dates are of the utmost importance and any information concerning radio aurora on these dates is of example extent and types would be most useful. Dates are:—

1957—  
September 28-30  
1958—  
July 7-9  
November 12-14  
1959—  
March 26-28  
July 14-16  
August 15-17  
December 4-5  
1960—  
April 1-2  
March 21  
April 30-May 1  
October 5-7.

This information is required to establish correlation of radio aurora incidence between the Northern and Southern Hemisphere.

The Society's Scientific Studies Committee will be most grateful if you can furnish information on this important matter at your earliest convenience.

—John Clariccoats, General Sec., S.R.S.G.B.

### E.D.R. JUBILEE CONTEST

It is with great pleasure that the Radio Amateurs of Denmark invite all brother Hams to participate in their 35th year Jubilee Contest on 12, 13, 14 and 15 May. The c.w. section starts at 1300 GMT, May 13 and ends 2400 GMT, May 13. Phone: 1200 GMT, May 19, to 2400 GMT, May 20, 1962. Logs should be sent to E.D.R. Traffic Department, Box 333, Aalborg, Denmark.

# Official Opening of New H.Q. Building for N.S.W. Division, W.I.A.

SOME few years ago the Council of the N.S.W. Division of the Wireless Institute of Australia formulated a plan which has culminated in the opening of the extensions to the headquarters property of the Division at 14 Atchison Street, Crows Nest.

The property, as originally purchased, consisted of a house situated in a central position on the north side of the harbour, one which is of easy access by public transport, and one with excellent parking facilities. The land on which the house is built allowed of considerable extensions to enable a building to be erected in the foreseeable future to form the headquarters of the Division, which with its present membership of 1250 members, requires a building to house all the facilities of the Division and to provide a meeting hall which will accommodate the members at the general meetings, v.h.f. meetings, s.w.l. meetings, and at the A.O.C.P. classes which are run by the Institute.

The main hall, which has been erected at the rear of the premises, is a large one, some 60 x 30 feet, tastefully constructed in texture brick, and surmounts a basement which will house disposals and the Bulletin activities.

Despite the delays due to bad weather which has been experienced in Sydney during our "summer," the building was in due course completed only one month behind schedule.

The Official Opening occurred on 17th March, 1962, and was attended by some 300 members, their friends and XYLs.

The Opening Ceremony was performed by Wal Hannon, VK2AXH, who is well known as the only surviving member of the Foundation Committee which established the Wireless Institute here in Sydney in 1910; supported by the President of the Division, Bill Lewis, VK2YB; Mr. Jack, M.H.R.; Group-Captain Waddy, M.L.A.; Mr. Christain,

the architect; Mr. C. Carroll, representing the Superintendent Radio (Mr. Riley, who was unfortunately unable to attend); Ald. Hardwicke, Deputy Mayor of North Sydney.

The President in his opening address welcomed the dignitaries, members and their friends, and referred to the support which had been given by Divisional Council and members which had made this building a reality, and furthermore,



referred to the amicable relations which the Division has with, not only the P.M.G. Dept. through their officers, but also the assistance given to the Amateur Service recently by the members of the House of Representatives in Canberra. He thanked those members who had subscribed to the appeal for chairs which was organised so well by Frank Pearson, VK2ACQ.

Responding, Ald. Hardwicke, Deputy Mayor of North Sydney, stated that his

Council was pleased that yet another cultural organisation had chosen the North Sydney area in which to expand their activities, and wished the Division all success in their endeavours.

Mr. C. Carroll, P.M.G. Dept. representative, referred to the work of the Advisory Committee on our behalf, and also drew attention to the co-operation which the Department is always ready to give to Amateur and Viewer alike in cases of t.v.i., but stressed the importance of friendly relations between the Amateur and Viewer.

Mr. Jack, M.H.R., spoke on the outstanding public service given by the Amateur Service, referring to the work done by Amateurs during the disastrous floods some years ago and on the many occasions when the Amateurs have stepped into the breach and maintained communications in times of distress.

The final speaker, Mr. Waddy, further exemplified the importance of the Amateur Service in its capacity to provide ready trained operators for the Armed Services.

Wal Hannon, VK2AXH, reminisced on the past history of the Division in N.S.W. and referred to the work done by the many members through the 50 years of existence. Finally, Wal declared the extensions officially opened and unveiled a handsome plaque commemorating this historic event.

Our thanks are expressed to all those who assisted, especially in the final stages, to enable this event to proceed on schedule; to the many ladies who formed themselves, with Frank Pearson's assistance into an auxiliary, to provide afternoon tea for the large crowd attending; and to make this function one to remember.

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7	VK1BE	300	118
8	VK1HO	132	118
9	VK1ABR	143	118
10	VK1ZAZ	120	118
11	VK1ZBR	120	118
12	VK1FW	157	118
13	VK1ZAZ	847	118

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" 3007	"	"	6/2
" 3010	"	"	7/4
" 3011	"	"	7/4
" 3014	"	"	8/5
" 3015	"	"	8/5
" 3018	1 1/2"	"	10/6
" 3019	1 1/2"	"	10/6

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# ROSS HULL MEMORIAL V.H.F. CONTEST 1961-62 RESULTS

The Ross Hull Memorial V.h.f. Contest has passed and the Federal Contest Committee has pleasure in presenting herewith the results.

The new scoring system has brought forth many comments. We regret we cannot acknowledge each one individually, but we thank all those who have sent us their comments and we assure you that they will all be considered, when the next Contest is prepared.

The Contest Committee is very pleased to see from the letters received that the majority of contestants are in favour of the new scoring system, with perhaps a few adjustments, and some contestants suggest that activity has increased. However, the number of logs received was less than last year. The poor support of the Open Section seems to indicate that this section might as well be done away with as a separate section so that in future there is only one transmitting section, allowing all modes of transmission.

The duration of the Contest has come under fire again and some suggest that operators select a period of 7 or 14 days from the total operating period of two months for their Contest log. This, of course, would make it extremely difficult to cross-check logs. Another suggestion is that operating times be limited to evening hours and weekends. Suggestions have been plentiful and very helpful.

The general feeling seems to be that the densely populated areas have the advantage under the present scoring system and that some allowance is required in that regard. We have shown the location of each station, taken from the Call Book, alongside the scores so that interested operators can have a better idea what the situation is. This is another matter for review next year.

In conclusion, we would like to congratulate VK5ZDR for winning the trophy this year, and we also congratulate the other award winners.

We have had many queries about outstanding award certificates. We regret there has been a rather long delay in the supply of certificate blanks and want to assure all those concerned that their certificates will be forwarded as soon as the new forms are available.

Best 73 and good operating,

—Federal Contest Committee, W.I.A.

## TROPHY WINNER

VK5ZDR—M. J. McMahon 3357 pts.

## AWARD WINNERS

### Section A—Transmitting, Open

VK4PU—J. D. Purdon 1189 pts.

VK5TN—B. G. Tideman 1134 "

VK6HK—D. F. Graham 889 "

### Section B—Transmitting, Phone

VK1VP—E. Penikis 116 pts.

VK2ZLP—D. L. Price 1359 "

VK3ZEA—G. W. Small 1619 "

VK4ZAZ—J. L. Bickford 2038 "

VK5ZDR—M. J. McMahon 3357 "

VK6BE—J. R. Elms 2394 "

VK7ZAO—R. K. Emmett 905 "

VK8AV—A. E. V. Molineux 1700 "

VK2TR/R—R. Taylor 300 "

ZL1AUM—C. Maddock 470 "

ZL3RK—T. J. McKenzie 080 "

## Section C—Receiving

WIA-L221—R. Abernathy 1660 pts.

VK4—T. H. Lane 000 "

## INDIVIDUAL SCORES

### Section A

VK4PU—Woombye 1189 pts.

VK5TN—Adelaide 1134 "

VK6HK—Wembley Downs 889 "

VK6VF—Wembley Downs 197 "

### Section B

VK1VP—Canberra 116 pts.

VK2ZLP—Armidale 1359 "

22FB—Cronulla 1288 "

22CF—Sydney 847 "

22GL—Inverell 664 "

2ABR—Milperra 653 "

22DA—Miranda 517 "

22AD—Delunga 480 "

22GM—Ungarie 344 "

22BI—Via Junee 135 "

22BM—Lismore 10 "

2HE—Check log

22EX—No mileage shown, disqual.

VK3ZEA—Rainbow 1619 pts.

32GZ—Via Mildura 1221 "

32CG—Morwell 724 "

32GV—East Malvern 547 "

32MK—Ferntree Gully 505 "

32LK—Melbourne 437 "

32DO—Melbourne 370 "

## Section B (Continued)

32KM—Ferntree Gully 347 "

32LP—Via Geelong 283 "

3ASW—Via Renmark 279 "

32MC—Frankston 235 "

3AII—Newport 185 "

3FW—Canterbury 147 "

3ANG—Bentleigh 88 "

3NB—Camberwell 87 "

3GW—Rainbow 23 "

3ZKO—Frankston 15 "

VK4ZAZ—Rockhampton 2038 pts.

42BE—Townsville 1838 "

42HG—Gympie 887 "

VK5ZDR—Henley Beach 3357 "

5AW—Penola 3016 "

5ZBR— 914 "

5ZBL—Vermont 728 "

5ZDI—Penola 594 "

5ZDA—Salisbury 369 "

5ZBC—Mile End 165 "

5ZCD—Via Bordertown 14 "

5CG—Check log

VK6BE—Leamurdie 2394 "

62AA—Mt. Pleasant 1461 "

6RY—Palmyra 853 "

6ZDS—South Perth 825 "

6ZCD—Albany 363 "

6MM—Nedlands 453 "

6FM—Mt. Pleasant 438 "

VK7ZAO—Hobart 905 "

72AQ—Hobart 815 "

72AQ—New Norfolk 456 "

72AC—Hobart 141 "

72AX—Hobart 67 "

VK8AV—Daly Waters 220 "

8AU—Batchelor 80 "

VK2TR/R—Port Moresby 388 "

ZL1AUM—Auckland 570 "

ZL1AKY—Papakura 340 "

ZL3RK—Christchurch 650 "

## Section C

WIA-L221—R. C. Abernathy, Sydney 1660 pts.

VK4—T. H. Lane, Brisbane 69 "

WIA-L3074—J. M. Hilliard, no mileage shown, disqualified.

VK5—K. A. Wehr, no mileage shown, disqualified.

P.S.—Although listeners cannot agree with the stations on the mileage, the showing of distances is a requirement of the present rules and distances could have been worked out by use of a map and the Call Book.—F.C.C.

## CATHODE RAY TUBE CHARACTERISTICS

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									X Plates	Y Plates				
2AP1	2	6.3	0.6	250	1000	—60	—	52	0.110	0.13	Green	Medium	ES	U11
3BP1	2½	6.3	0.6	575	2000	—60	—	78	0.127	0.172	"	"	"	U14
VCR139A	2½	4	1.1	800	120	—10	800	64	0.217	0.217	"	"	"	PS12
3FP7	3	6.3	0.6	575	2000	—60	4000	76	0.1	0.14	"	Medium	"	U14
3AP1	2½	2.5	2.1	430	1500	—50	—	78	0.223	0.233	"	"	"	USM7
DG7/5	2½	6.3	0.3	—	1000	—	—	76	0.16	0.25	Blue	Short	"	B9G
5FP7	5	6.3	0.8	250	7000	—45	—	127	—	—	Green	Medium	MG	O
VCR517C	6	4	1	2000	525	—80	3000	160	0.12	0.14	Blue	Long	ES	CK12
VCR97	6	4	1	200	450	—100	2000	152	0.3	0.57	Green	Short	"	CK12

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# Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

## GENTLEMEN'S AGREEMENT

Editor "A.R.," Dear Sir,

The literary eloquence of Mr Jones no doubt will add to the ranks of the "fine only" clan but as I am concerned much of what he quoted is biased hogwash.

He appears to have completely forgotten the main issue at stake! Amateur Radio is our hobby and this is still a free country—even though we are forced to read, hear and watch what the great and almighty press wish.

Unlike the above gentleman, I am a lowly technical soul whose choice of chore is telecommunications in which field I come in contact with all types of equipment from plain c.w. to facsimile.

Even the most advanced communications system still uses c.w. as "the old stand by". Perhaps it is only as a term of comradely communication, but it still is, and will continue to serve its purpose long after Mr Jones' demagogic.

May I ask him if he can still work 100% intelligible DX and have a good rag chew on 40 or 80 and still get a thrill out of it? Can he take up some little 30 watter who can't speak English but can make himself understood with "Q" signs and still get a thrill?

Trustee tolerance, Mr. J. We all like Hamming—you like phone—I like c.w. (and s.a.b.) You stick to your end of the band and I'll stick to mine and what's more, you stick to your brain washing and let other people do and live the way they want.

—Another VK3

[Name supplied to Publications Committee and withheld by them.]

Editor "A.R.," Dear Sir,

Mr Jones' recent letter is, of course, as ridiculous as his previous ones. It is devoted to a plea in the name of democracy, for the continuance of this one-man soap box, yet Mr Jones fails to acknowledge the fact that, as yet, he has had no legitimate support in these columns for his wild claims.

Mr Jones' assumption that those who replied to his previous correspondence "are the minority who are on c.w.," implies a lack of interest on the part of the remaining body of members. In which case, Mr Jones continues to have an indication of tacit support for his cause—this concept, of course, is ridiculous.

The statistics presented by Mr Jones' sopsismars friends were obviously compiled by a person with no technical knowledge of the subject with which he was dealing. Mr Jones admits to having "spent many years in journalism," and his associate is alleged to have "degrees in economics from three countries," but I fail to see the connection with analysis of the frequency spectrum and rate of information transfer, yet we are expected to accept, even believe, these obviously fallacious claims.

It is also apparent that past correspondence has indicated the feeling of members on this subject, so I feel that no further purpose can be served by this interminable correspondence, or by the referendum proposed by Mr Jones.

I would suggest that Mr Jones may be better appreciated by his "dear friends" in the Arab world than by the vast majority of Australian Amateurs.

—Ian N. Cousins, VK3KX.

Editor: Diplomat.

Editor "A.R.," Dear Sir,

This time, Mr Editor, please don't exercise the editors' hatchet until after some of us have an opportunity to reply to Mr Ruth Jones, who appears to have burst into song once more.

Mr Jones' main difficulty appears to be the fact that so far, because of the efforts of his distinguished, but anonymous, business friend, all his vocalisation has been solo work. He appears to be unable to muster up a single supporter. On the other hand, it is quite apparent that Mr Jones' opponents are no numerous that their replies are an embarrassment to the Editor.

As far as facts and figures are concerned, Mr Jones, you were given them last month, but apparently preferred to keep your head under its customary sand dune.

I quote Cyril Rylett's letter: "... c.w. 34%, s.a.b. 28%, s.p. 38%." "The" is from the R.S.G.B. Bulletin, which is quoting the A.R.R.L. report. Even your businessman, no matter how clever he is, cannot refute those

Finally, Mr Jones, most of the interested parties over here prefer to ignore your comments, since, in their opinion, you are only trying to stir up an argument. I also have come to that conclusion. I suggest that you make use of your obvious talents in the next Federal election. If successful, you doubtless won't be able to persuade the Amateur to part with his beloved c.w., but you could certainly give much needed support to the Amateur cause.

—Bob Elms, VK8BE.

[The above three replies, taken at random, are readers' opinions. Unless other readers can offer new facts, not discuss personalities, then correspondence on this matter will be closed.—Editor.]

★

## Emergency Services & S.S.B.

Following the recent disastrous bush fires in Victoria, Group Capt. W. R. Garrett, M.L.C., in whose Southern Province most of the fires occurred, spoke to C.F.A. communications people and learned that interference on the emergency channel had been quite serious and had hampered the handling of the fire fighting personnel.

In mentioning this to Geoff ZAC (ex3GT), the idea of a demonstration of the s.s.b. sets are being every day on 7.1 Mc. was decided on and a date set for such a demonstration.

Group Capt. Garrett still arrived at ZAC's shack on a Thursday afternoon at 4 o'clock and 12 active sidebanders were ready and waiting to go.

The method of clearing the air was to use a 500 cycle tone at ZAC's rig. ZAC functioned as the controlling station to carry out the following demonstration with the following stations in the set: 37J Mornington, 02J Ringwood, 3HG Coleraine, 3AHO Kvaibram, 2KBC Tomingley, 3DM Ormond, 5EF/M Gawler, 2KB Brunswick, 3ADJ Posner, 3ADJ Edgefield, 31Y North Balwyn. At ZAC's QTH all stations were 8 and 9 with the exception of 5EF, who was 5 and 6 from his cur near Gawler.

The programme was carried out as follows:—

(1) Each station was called in to identify itself and to give its location.

(2) It was explained that when a 500 cycle tone was heard all stations should cease transmitting and should listen. All stations using fast action vox.

(3) All stations were asked to insert carrier wave and to detune to give Group Capt. Garrett a demonstration of heterodyning by a number of stations slightly different frequency. However, for the one minute of the demonstration, all that could be heard were a couple of low frequency heterodynes. It was pointed out that had relied on the other fellow to detune his rig. So this one was repeated with stations detuned various amount up to about 3 Kc. This then resulted in a duplication of the chaos we sometimes hear on Sunday mornings on 7 Mc.

(4) The next demo. was to ask all 11 stations other than ZAC to hold an 11-way QSO, throwing the ball round as it were. This resulted in a most interesting performance. It was noted that particular voice could be picked out and followed when more than one person was talking.

The next demonstration was to show how four stations could carry out two QSOs on upper and lower sideband on the same frequency. This was possible by using the lower sideband to the other and resolve each separate QSO without trace of interference from the supposed sidebands, which disappeared below a strength 5 noise level that was prevailing.

Group Capt. Garrett replied to the stations concerned and thanked them for their interest in the emergency services. He promised to bring the details of s.s.b. before the next meetings of parliament which were convened to deal with the problems associated with emergency operations.

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We are heading into the winter months again and it has become apparent, as usual, that activity on the various v.h.f. bands is rapidly decreasing. Why? Sure, the winter evenings are the best time of the year to enjoy on-the-air activity with Amateur Radio.

Admittedly the DX is not so common, but it is still there. Besides, there are other interesting on-the-air activities as well as DX hunting.

During the past couple of years, over two hundred and fifty stations have been heard on two metres in Melbourne, but at the present time you are lucky to hear more than four or five stations on the air on any one evening. This state of affairs also applies to six metres, and I understand that the other States are experiencing the same problem.

How about rectifying this position? V.h.f. operation should not be a seasonal aspect of our hobby, but a good solid, all-the-year-round part of Amateur Radio.

Perhaps the "kiddie box" at least one night per week and make your signal heard on the ether. 3ARZ.

#### NEW SOUTH WALES

Project Oscar: Roy 37FO has been appointed Oscar co-ordinator for Australia. Support for this project in VK has been disappointing. It is not necessary to have an elaborate laboratory to participate in the project. Just normal 144 Mc. receiving equipment. Full details on the reporting procedure have been given in recent issues of EART. Let's prove that we have an interest in the new age of space communications.

144 Mc. s.b. is gaining a hold on 144 Mc. After several false starts, stations heard on s.a.b. were 2AAB, 2RX, 2ZBW and 2ZVW. Most ex-citers are the 6 Mc. phasing type. Geoff 2ZGZ of Angara, 280 miles west of Sydney, is also using s.a.b., upper sideband, 137w, to a KX130G feeding 32 elements on a freq. of 144.18 Mc. Geoff is looking towards Sydney, and he's getting better results than he has west. Another new station to the south of Sydney is 3ZNL, at Bullit, on 144.6 Mc.

Geoff 2ZGZ's report has been an occasion of hearing the Sunday broadcast of 2WT on 50 Mc. in Mudgee, 180 miles over mountainous terrain. With the decline in conditions on 2.8 and 9 MHz, the v.h.f. coverage has become important. Plans are in hand to increase the tx power and construct high gain antennas at Dural. DX reports of the 10 and 144 Mc. coverage should be sent to Tim 2ZTM.

The lecture at the April meeting was on s.a.b. and bands by Keith 2BK, a topical subject. Peter to Keith's lecture, a new committee was elected for the coming year, so a new scribe for the next 12 months, give him your views and suggestions and send them in for inclusion in these notes. Details of DX, new stations heard, unusual conditions, new techniques, etc. 2ZDP.

#### VICTORIA

At the meeting for March, 35 were present to elect the following members to the 1973-74 committee: President, Bill 3ARZ; Secretary, Len 3ZOP, Peter 3ZOM, Bruce 3ZAR, Ken 3ZKA, Geoff 3ZGZ, Michael 3ZGZ, John 3ZCC, Bill 3ZAP and myself. Thanks to the retiring committee members for their assistance during the past year.

The latter part of the meeting discussed activities such as field days, fox hunts, scrambles, etc. Some lively criticisms were forthcoming as a result of reports of field days and scrambles and improvements will be further discussed.

The v.h.f. bands are already extremely quiet and even though winter is still a few weeks off, the usual lull is well in swing. Rex 3OB worked Don 3AKN at Broadwater on Monday 12th and Tuesday 13th. Sam was good on the 12th but c/w was necessary on the Tuesday. A new call on the 2 m.x band was John 3Z1J, located at Glen Elly. He runs 37w to a 2000 Hz with a HZ58 pre-amp.

Ron 3ZER is building tall controlled gear for 576 Mc., using large strings of 68k in both directions and he is particularly interested to hear of others with tall locked gear. Mac 3ZQ, Jeff 3AUX and Ivan 3ASG have also been active on 576 Mc. Mac has heard 37w on 576 Mc. 3ARZ has been on 576 Mc., while Jeff

3AUX is about to attempt to convert a BC655 tx to the band.

New stations on 6 m.x are Terry 3ZOB at Highgate and Peter 3ZCZ at Warragul. Alan 3Z1S was back on the band from his new QTH at Brighton only one week after returning from his honeymoon. Another Alan, 3ZCJ, is the proud father of his first harmonic, XVI, and daughter are both well. Not so sure about Alan though!

The first of the 3 m.x daylight fox hunts was voted a success at the picnic and rag chow held at the final location afterwards. The next one takes place on 6th May and 6 m.x stations will be included this time. Meet at the loop in Studley Park near Digby's Falls at 3.30 p.m. if you are interested. 3ZLT.

#### QUEENSLAND

A few JAs have been in this month and openings occurred on 30, 10th, 11th, 13th, 21st, and 26th March; possibly many other openings occurred of which I am not aware. The Russian t.v. station was heard on a number of other occasions also.

Ron 4ZBZ was mobile on the week-end of 24th and 25th March to the outback portions of Queensland and worked into Brisbane from Milmerston on 2.8 and 5 m.x. Ron also has frequent sheds with 2Z7S on 6 and 3 m.x. and from the results obtained from these sheds and the outback trip, it is obvious that 6 m.x is far superior to 3 m.x for reliable, consistent, long-range ground wave communication.

The V.h.f. Group meeting was held at the home of 4ZBR after a very good and extravagant s.b. and quality was served. The matters discussed related to the provision by v.h.f. types of communication to ensure the safety of the car when it is under control. The woombe to Lockyer on the Easter week-end. A visitor to the meeting was Paul 6ZBV, who brought a miniature 3 m.x. and a miniature 3 m.x. tx. 4ZAX brought along a miniature 3 m.x. tx. 4ZGD had a good idea, so he raced out into his car and worked a VK9 mobile on 2 m.x.

V.h.f. types are getting ready for the annual W.I.A. Convention. Certain unusual types of equipment will be under control. I hope to give full details after the Convention takes place.

A few amateurs are starting to get ready for the 2.8 MHz. and it is hoped that it will not be left to a mere handful to uphold the honour of VK4 land. 4ZBT

#### SOUTH AUSTRALIA

50 Ma. For the month of March there have been no band openings at all on 50 Mc., however the appearance of a newcomer, and a new mobile, has helped maintain interest. Ivan 41B was portable over here, towards the end of March. Ivan had portable gear on 81.3 Mc. and worked quite a number of local calls. The high freq. Ivan was using may have resulted in some of the chase missing him. Recent newcomers in this State on 50 Mc. include Howard 5ZBR, Jan 5ZGC, David 5ZDP, Ken 5ZAL and Carl 5ZS. These stations represent quite an increase in activity and it is good to hear them.

Speaking of new activity, Doug 3KK has got s.a.b. going on 56.81 Mc. Doug is using a phasing type antenna and although the p.p.s. is only 20-30w, the quality of the signal is excellent. Keith 3ZMK has his new 50 Mc. mobile going very nicely. Keith is running a 3ZQZ/15/1 on 6 m.x. and on recent 3000 mile trip enjoyed good contacts all the way. With the introduction of 3 m.x. fox hunts, quite a lot of the chase and 3 m.x. mobile rx's in conjunction with their 6 m.x. mobiles for some very interesting mobile-duplex contacts. The main item of 50 Mc. news is that application has been made to the P.M.G. for permission to run a beacon station on 50 Mc. The beacon will be on 50.5 Mc., running 37w, on a non-directional antenna which will be used. Type A1 emission will be used at 15 to 20 w.p.m. and (most important!) it will run 24 hours a day. The beacon will be at Geoff 3ZCQ's place in Adelaide. Further details will be given as time proceeds.

144 Mc. activity has been going lately for fox hunts, and quite successfully. On 30th Mar. three fox hunts were held. There was a reasonable amount of activity and the following were successful: 3ZDX was all three hunts (on 144 and 288

respectively) some of the results were quite close. Having tried 50, 144 and 288 Mc. for fox hunts, we in VK3 seem convinced that 144 Mc. is the band to use.

Bill 5ZAX, near Maitland, has put up a 30 el. array on 144 Mc. and big signals are expected from him. Another 3 m.x. man, Tony 3ZAJ was in Adelaide over March and in addition to announcing his engagement, Tony did quite a little visiting of local genre. Congrats, Tony.

General News: A V.h.f. Group meeting was held in March, the main item of interest being the 50 Mc. beacon. President Gary 5ZK was in the chair. Two chairs have recently returned from the Northern Territory: they are Eugene 8AV and John 5ZDL. Eugene was working from Dairu, Western Australia 50 Mc. during his long stay up there. That day of the v.h.f.s, Neil 5ZAW, has passed his c.w. and is now 57W. Neil will be missed on the v.h.f. bands. He will not be going to forsake the v.h.f. bands.—V.h.f. Ed. 5ZCR.

#### WESTERN AUSTRALIA

March meeting: 45 members attended at the D.C.A. workshops. Two new members were welcomed to the Group. After a general business session, Vic 6VKE gave an informative lecture on s.a.b., its generation and reception. It is hoped to get Vic to give follow-up lectures on this subject.

March tax hunt proved different to recent events. A large following of hounds turned up for the hunt. The day was very dry and sunny with a light breeze. Mac 6MM provided a touch of humour when his vehicle was seen to be a Model T complete with long jay 30 ft. high. Mac 6MM disappeared shortly after the start! (By design or accident, Mac won't say!) Roy 6RY was the outcast winner.

Operations Oscar II: A committee was formed and a meeting held to co-ordinate the group's efforts for tracking and reporting the Oscar II satellite. The receiving site will be under the control of QTH. The committee has been designed and constructed the antenna mounting to track both azimuth and elevation. The antenna is mounted on a motorized base, and signals received through two receiving set ups, most valuable by the members pooling their equipment.

144 Mc. activity has increased as a number of the Group have purchased BC655 sets, etc. Main differences in location has been the treatment of the modulator. Some very interesting audio has been heard from these units.

50 Mc. slow Morse is run every night except Saturday by Roy 6RY and Mac 6MM from 2000 to 2030 hrs. There is a news exchange session every Sunday night at 2000 hrs. run by Bob 8B and Roy 6RY. All stations are invited to report news items for the V.h.f. Group Bulletin and s.a.b.

6 m.x. has gained a number of converts, who are building gear for 50 Mc. Kevin 5ZCN has almost completed an impressive unit and Vic 6V is rebuilding his 50 Mc. s.a.b. Mac 6MM has been operating s.a.b. for some months now. Some of the local amateurs are discussing and building 6 m.x. equipment prior to going all out on s.a.b.

Two new calls have been heard on 30 Mc. recently, John 6ZDN and John 6ZDL. Welcome to the 30 Mc. band and to all other new stations we have not heard.

Amateur Radio received a boost locally when the 30 Mc. members of the 30 Mc. club and operated a radio controlled and timed hill climb as part of 4HR rally. Pat 6PH, Len 6ZCS and Alvin 6ZDL participated, using commercial gear loaned to the car club, which had P.M.G. sanction to use the freq. provided. These members were thanked by the sporting club for helping to make the rally a success.

288 Mc. and above, no news is to hand regarding these frequencies. Have heard whispers of one or two stations working 288 Mc. more information next month. 5ZDR and 5ZDL.

#### NORTHERN TERRITORY

A bit of activity heard on 6 m.x. at the moment as I write, the band is open to JA in a sort of fashion. JAs have been heard and worked on many days during March. Unfortunately no one has been heard on 144 Mc. Territory now, 8AV has returned to VK3. 8AU.

(Continued on Page 16)



# VOLTAGE REGULATION!

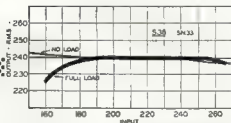


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ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

### BRITISH PRODUCTS

When high quality sideband transmitters and receivers are mentioned, most Australian Amateurs immediately think of the impressive array available from the U.S.A., but making an impression on the Australian market are some products of K.W. Electronics, of Kent, England. Quite a number of VKs are already using the K.W. "Victory" a.s.b. transmitter and receiver. There are now three models, the Mark I, II, and III, in use in various parts of the world. A disadvantage of the Mark I, "Victory" was the upper sideband only being available on 40 mc, but this has been amended in the Mark II, and III, models. The a.s.b. is generated at 435 kc, and a crystal lattice filter is used for this purpose. A high stability temperature compensated Clapp v.f.o. is used, tuning from 3065 to 3795 kc, resulting in a.s.b. output in the 80 mc band. Suitable crystals are used in the second mixer to give output in the other bands, 40 to 10 metres, with i.s.b. on 80 and 40, and u.s.b. on 20, 15 and 10. A pair of 6148 tubes in Class AB1 in the final give 180 watts p.e.p. input, the output circuit being a pi-network and the final stage is neutralised and completely screened as a t.v.i. precaution. A sample of the output is used to provide automatic level control. The increased average level of output without spatter and objectional distortion C.W. is also available and a lower level of a.m. is possible by inserting a carrier about 20 db below input level. Vox with anti-trip is incorporated and is also used to give break-in on c.w. The Mark II "Victory" receiver has a similar design while this is included in the cabinet of the Mark III.

The KW77 communications receiver is a fine companion for the "Victory" transmitters. The physical appearance is very attractive and while it may have excellent XYL appeal, the design behind the front panel will be appreciated by any amateur experimenter. This receiver has a crystal controlled front-end, covers all Amateur bands from 160 mc to 10 mc, has selectable sideband, and a choice of 12 selectivity gain bandwidths of 0.5 kc, 1.5 kc, and 3 kc at the -4 db. points. The second intermediate frequency is 50 kc and an L-C filter, with a wide range of variable inductances, is employed. The inductances are shielded in cans to give best possible circuit isolation for optimum spurious response figures. The maximum frequency coverage is 600 kc on any one band but that the 10 mc band is covered in three segments, 28.0-28.6, 28.6-29.3, and 29.3-29.8 Mc. The performance figures claimed are for sensitivity, 0.5 uv. for the 10 db S/N ratio and a frequency stability of better than 100 parts per million over 24 hours. The maximum of the KW77 receiver are 10 x 24 x 12 inches.

### MODIFICATIONS TO K.W. "VICTORY" MK. I.

The lack of lower sideband on 7 Mc. has been a serious disadvantage to owners of the "Victory" in Mark I. It is fairly easy to modify the Mark I, for lower sideband production on 7 Mc. and 40 mc, as follows:

#### Components required:-

- 1 only 3-pole M/B relay, contacts normally open.
- 3 only 18 pf. trimmer capacitors C1-3-3.
- 3 only 60 pf. silver mica capacitors C4-3.
- 1 only 4015 kc. crystal.

The relay can be operated from the 250v. r.f. or a.c. line power supply. The purpose of the relay is to switch in additional capacitance across the mixer transformer IPT4 and the grid input to the second mixer. This relay can be operated from the spare 40 metre connection on the rear section of the wave change switch.

Step 1.-Insert C1 and C4 (parallel) between ground and anode of V2B through relay contact 1. Connect closed only on 7 Mc.

Step 2.-Insert C2 and C3 (parallel) between ground and anode of V2A through relay contact 2. Connect closed only on 7 Mc.

Step 3.-Insert C3 through hot end of L5 (in parallel with C49) through relay to ground. Connect closed only on 7 Mc.

Step 4.-Replace existing 40 mc crystal with one of 4015 kc.

Step 5.-Re-resonate anode coil L1A at 3830 Mc.

\*Local agents, R. H. Cunningham Pty. Ltd

### Step 6.-Adjust C1, C3, C4 and L1A for maximum drive in "time" position

The dial calibration should remain the same as before. It is advisable to conduct any tests into a dummy load and to check output against a frequency meter.

The adjustments listed under Step 6 are the only ones which should be made. Further adjustments would impair the performance of the transmitter on other bands.

Many thanks go to Bob VK2MFL for supplying the details on the K.W. equipment.

### S.S.B. DX CONTEST

The week-end of March 24/25 was devoted to the 1982 "CQ" World-Wide S.S.B. DX Contest in which many VK stations participated. Conditions were generally quite good in Eastern Australia and most Eastern States contestants would have had little trouble in making W.A.C., particularly on Sunday afternoon when, it seemed, the whole world was on 20 mc at the one time.

This Contest was a very well mannered affair without the dog-eat-dog aspect of some past experiences of a.m. and c.w. days. Possibly the reason for this is that operator's nerves are far less frayed by the lack of screaming bat-dyn-dyn. The superior readability of sideband and the operating convenience afforded by Vox also makes for much faster exchanges.

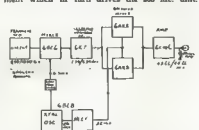
There are some lessons to be learned from a contest such as this. It is essential that Vox be employed so that the operator is not slowed down by having a switch or worse, switches to operate. Transceiver-type tracking of rx and tx would eliminate the need to retuning the rx automatically positions the tx on the same frequency. An alternative to this is to use a proximity switch on the v.f.o. control so that when one puts a hand near the v.f.o. control knob, the netting circuit is operated. "QST" has described a very simple such device called "Proxon".

A good over-drive monitor should be employed, one is included to get a little anxious and turn up the audio gain. Of course the only way to be sure is to use an oscilloscope. Automatic level control, similar to that used in the VK2MFL "Victory" (see p. 29), not only removes this worry, but your average level or "talk-power" is greatly increased. A sideband limiter, useful for the easy installation of this a.l.c., it has the same effect as a speech compressor in an a.m. modulator, but only uses a mere handful of components.

Now is the time to start preparing for next year's battle and now is also the time to send your log to "The CQ Sideband" Editors, 12 Elm St., Lynbrook, New York, U.S.A. The deadline is for your log to reach there not later than May 30, 1982, so DO IT NOW.

### RETRODTHNE V.F.O.

Last month mention was made of the v.f.o. control that VK3AHL has on the 288 Mc. band. Fig. 1 shows a block diagram of the retrodthne v.f.o. unit that Lance uses in his 50 mc equipment which in turn drives the 288 Mc. unit.



You will notice that at no time is the actual variable capacitor frequency multiplied, only the output of the 4.7 Mc. crystal oscillator is multiplied in frequency. While some may say that this adds up to a lot of components and cost, the end result of superb stability fully justifies this.

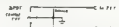
Some of you may give thought to applying this technique to produce the 10 mc signal for that 9 Mc. phasing exciter to give a really stable signal on 40 mc.

### 40 AND 80 METRE DX

I know that quite a few of you have been working all sorts of DX on 3.5 and 7 Mc. How about sending the details, frequency, time and so forth to Al Shaw-Smith, who runs the DX section. Al will be delighted to receive these reports and it will help to spur some of our other sidebanders to greater achievements.

### KWMS CONTROL CIRCUIT

Some of us are lucky enough to have a KWMS to play with so this item, taken from the S.S.B.A.R.A. "Sidebander" should be of interest. It was written by KZ5SW, Bob B18, Balboa, Canal Zone, and appeared in the December "Sidebander".



Without buying the handy-dandy control box for the KWMS, push-to-talk operation is not normally available with this little gem. Also disabling the vox, to prevent noisy Jr. Ops, from tripping it, entails lifting the lid and reducing the vox gain. This is not always convenient. Here is a simple, cheap way around the situation. Obtain a single-point double-throw switch with a "centre off" position, two lengths of shielded phone cable and two R.C.A.-type phone-pin plugs, along with a bracket to hold the switch in a convenient position. Proceed as follows:-

1. Attach phone plugs to one end of each cable.
2. Connect centre conductor of one cable to end terminal of switch.
3. Connect centre conductor remaining cable to other end terminal of switch.
4. Insert one pin plug into PTT jack of KWMS or 3251.
5. Insert other pin plug into phone patch jack on KWMS or 3251. (Note: If this jack is in use connect lead in parallel with existing lead.)
6. Test operation as follows: With switch in centre position, operation should be normal vox. With switch in position to ground out PTT, the switch should be in "push to operate" position. With switch in position to ground the phone patch plug, all audio input will be grounded so vox will not operate, and the rig will be "receive only".
7. Mount switch in a convenient position.

The Publications Committee requests all readers to forward details of apparatus they have built, technical description and photographs of apparatus are particularly welcome.

## S.S.B. CRYSTALS

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# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL

### OBITUARY

The W.I.A. offers Peter Dunne its sincere sympathy on the loss of his wife. Peter was originally a P.M. user, and was a member of the Melbourne club but was transferred to Hobart. He is now at 21 Elaine St., Mt. Gravatt, Qld.

### NEW CALL SIGNS (DECEMBER)

- VK— Australian Capital Territory  
15Q—R. K. Roschke, 8 Fennis Cres., Narrabundah.  
15Q—A. Brinkley, 9 France Cres., O'Connor.  
12W—E. Moore, 185 Eyre St., Griffith.  
1WP—F. V. Inglis, 28 Green St., Narrabundah.  
New South Wales  
3DU—D. H. W. Fullerton, 58 Larnier St., Newcastle.  
3FC—F. Finlayson, 59 Newcastle Rd., Wailend.  
12D—Mrs. H. M. Davies, 33 Langtry Ave., Auburn.  
311—B. Dale, 18 Robinson St., West Wollongong.  
27K—E. Thompson-Bayd, 2 Jill St., Blacktown.  
1WG—W. J. Melville, 64 Travers St., Wagon.  
5AA7—H. C. Burton, 60 Edgemoor Rd., Wollongong.  
1ANO—J. A. Simensen, Lot 15, Koorabell Ave., West Wollongong.  
2ZAW—D. G. Allen, "Lyndon", Fitzroy St., Wailend.  
22CH—C. Henderson, 949 Blackland Rd., East-wich Hill.  
22IM—A. A. Mackenzie, 103 Denison Rd., Dulwich Hill.  
22LE—L. Thorne, 38 Harefield Close, North Epping.  
22PL—P. F. Lowe, 15 Edgar St., Auburn.  
22RU—R. C. Usher, 34 Falcon St., Crows Nest.  
22VW—W. C. MacNaughton, 10 Killisdonk St., East St. Ives.  
22WC—P. W. Campbell, 3 Erie Ave., Ashfield.  
Victoria  
5ADF—G. M. Nicholls, 14 Somerset Rd., Glen Iris.  
Queensland  
4RF—J. L. Lubach, 31 Lovells St., Camp Hill.  
42RH—R. S. Hazlett, 35 Cavendish Rd., Coorparoo.  
42RJ—R. C. Harris, 6 Gurley St., Wavell Heights.  
South Australia  
5BM—M. R. Winterston, 7 Elmgrove Rd., Salisbury North.  
5WV—W. D. Verrall, 8 Perthwood Rd., Elizabeth North.  
5YA—G. M. Glynas, Station: Section 461, Mandaroom of Teleside, S.A.; Postal: Private Bag, Pt. Pirie.  
5ZQ—M. R. Burford, 68 Belair Rd., Fanchito.  
Tasmania  
52Z—T. J. E. Barker, 41 Gertrude St., Glandore.  
52EA—C. A. Betty, 3 Gilbertson Rd., Sealiff.  
52JR—J. Russell, 28 Richmond Rd., Westbourne Park.  
Western Australia  
6TS—A. G. L. Schofield, 87 Streatham St., Kenwick.  
Northern Territory  
8AU—D. T. Tanner, Batchelor.  
8QI—G. K. Jenkins, Railway House 1001, Alice Springs.

will count one point and a multiplier of one for each Asian country on each band.

Scoring. The score of each single band is the country multiplier for that band, multiplied by the total contact points on that band. The total of all band scores is the sum of country multiplier of all bands, multiplied by the sum of contact points on all bands.

All logs must be postmarked not later than 31st December, 1962. Send all logs directly to J.A.R.L. Attn: Contest Committee, P.O. Box 377, Tokyo Central, Japan.

A supply of rules and log forms has been distributed to Divisional QSL Managers and a further supply is held at this Bureau and may be had on application with a.s.n.

Plans for a DX-pedition to Nuevo Bala and Swan Island have been completed. One of the operators will be WDGQ. The expedition reaches Nuevo Bala on 30th April and will remain there for four days signing 8K4BP. They expect to reach Swan Island about at May and remain for two days signing 8K4BP. All bands and modes will be used.

—Ray Jones, VK3RI, Manager.

## NEW SOUTH WALES

### EXTRAORDINARY GENERAL MEETING

The first meeting to be held in the new headquarters building at 14 Atchison Street, Crows Nest, was an Extraordinary General Meeting held to consider the following Special Resolution—

"That the Honourable Allen Fairhall, VK2KB, be elected an Honorary Life Member of this Division in recognition of his services to the Amateur Radio movement in the political field."

The President, Bill 2YB, opened the meeting at 7.58 p.m. to an attendance of approx. 100 members. He referred to the outstanding work done by Mr. Fairhall in this regard and which it will be recalled had the result that a representative of the Wireless Institute was appointed to the Delegation to Geneva, the late John Wynne, VK2JY, later representative was appointed to the R.F.A.R.C., thus enabling the Amateur Service to present their case on Frequency Allocation.

The motion was supported by Frank 3QL, Dave 2EO, Graham 1AGH, Pierce 2APQ and Ken 1AIL. It was carried unanimously by the meeting.

### ANNUAL GENERAL MEETING

The Annual General Meeting, which followed, was opened by the President at 8.10 p.m. Apologies were received from 2FA, 2ABE, 2AUK. The minutes of the previous Annual General Meeting were read by the Minute Secretary (Max 2MP). The Returning Officer, Barry 2LW, reported and six candidates were selected to conduct the business of the ballot for the election of officers of the Division for the ensuing year.

The Treasurer's report and balance sheet was read by the Honorary Auditor, Jim 274, who disclosed that despite the great call on the funds of the Division during the year, it had been satisfactory. The report was adopted. Graham Hall praised the work of the Hon Auditor and on his motion, Jim was appointed for yet a further year.

The President's report, which had been sent to all members, was adopted on a motion which commended the President on the manner of its presentation.

A notice of motion, moved by Jim 2YC, and seconded by ZAVI and ZABO: "That as the Institute has its own Emergency and Transmitting H.Q. situated in Quarry Road, Dulal, and its own business H.Q. situated at 14 Atchison Street, Crows Nest, so the Annual General Meeting should discuss the present and future activity and the position on importance in the affairs of the Institute regarding the headquarters." Codified. The position and activities listed above should be discussed under three headings: (1) The Institute, (2) Atchison Street H.Q., (3) Position of the N.S.W. Division of the Institute taking into consideration the points raised in headings (1) and (2) above.

The mover of the motion explained his motion and owing to the limited time available on a large agenda agreed that the motion be discussed at a general meeting during the next three months.

Following an adjournment between 8.55 and 9.15 p.m., during which the general meeting proceeded, the Returning Officer announced the result of the ballot. Mr. Max 2MP was elected for the year 1962-3. H. F. Burford, VK2AAH; K. Jeffcott, VK2BK; T. Mills, VK2TDM; V. Molewsky, VK2VO; A. D. Nutt, VK2DN; M. Pfeiffer, VK2MP; K. Squires, VK32D. Thanks to the Returning Officer and his scrutineers was moved and carried.

Jim 274 moved a motion of thanks to the retiring Council and referred to the great amount of work done and the results achieved during the year. The Annual General Meeting closed at 9.35 p.m.

### GENERAL MEETING

At the general meeting minutes of the previous meeting were dealt by the Minute Secretary, Max 2MP. A notice of motion, "That all future meetings of the Division be held at headquarters, 14 Atchison Street, Crows Nest" was moved by 2CB and was carried unanimously. New members admitted to the Division numbered 11, six Full Members and five Associate Members.

The balance of the meeting consisted of the discussion of some 40 agenda items which will be discussed at the forthcoming Federal Convention to be held in 1963 at Sydney, at which the Federal Councillor, Pierce 2APQ, was briefed on the action desired by the Division. The general meeting closed at 10.10 a.m.

### COUNCIL 1962-3

The Council and officers of the N.S.W. Division for the coming year are as follows: President: Vol 274, Vice-Presidents: Max 2MP, Harold 2AAH, Councillors: Keith 2BK, Tim 2ZTD, Alan 2DN, Ken 2SD; General Secretary and Treasurer, Bill 2EG.

### DISPLAY—FAIRFIELD

On Monday 18/3/63 the N.S.W. Division presented a lecture series titled "Amateur Radio as a Hobby" to the members of the Fairfield Methodist Church. For nearly three hours the large audience of over 100 persons introduced to the various types of transmitters and receivers in the range.

Part of the activities was filmed by A.B.C. Channel 3 News team. The lectures were repeated and will be included in the Tape Service.

### COLLINS DISPLAY AT HEADQUARTERS

An interesting afternoon function was held on March 31 at headquarters when a demonstration of Collins Radio equipment was held, in conjunction with United Radio Distributors Ltd. A large audience, of over 150 people, attended and heard an informative lecture by Mr. White, of Collins Radio Company, who explained the features of the various types of transmitters and receivers in the range.

Afternoon tea was provided by the ladies committee and many interested persons became members of the Institute. Reference to previous issues of "A.R." or your Bulletin will show the wide range of tapes on diverse subjects which are available to clubs and small groups on application.

These tapes could form the nucleus of your next meeting, as they are all of lectures which have been given before the Division. No

## FEDERAL QSL BUREAU

Any information on the station on 14 Mc. c.w. during March and April signing CR18AB would be appreciated by this Bureau.

Results of the 2nd Asian DX Contest, staged by the J.A.R.L., show that the winner was August, 1962 GMY 20th. Australian scores were: VKs NGQ 4,600, 8RU 3,800, 2GW 2,485, 1WA 236, 2DI 215, 42R 106, 2APK 100, 4SD 554, 6RX 144, 8CX 45.

The 2nd Asian DX Contest will again be staged by the J.A.R.L. and is again restricted to c.w. only on bands 2.5 to 28 Mc. inclusive. The Contest period is from 1000 GMT, 20th August, to 1800 GMT, 20th August. The serial numbers exchanged will consist of five figures—RST report plus age of operator. (Apparently no provision is made for counterparty operators.) YL operators may substitute 00 in lieu of age!

Points and multiplier: For non-Asian Stations—A contact only, with an Asian station

## SILENT KEY

It is with deep regret that we record the passing of—

VK5MD—E. A. ("Doc") Barbier

# \*AEGIS

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	J.6	No. 2. " " " "
110 Kc.	J.7	No. 1. High selectivity.
	J.8	No. 2. " " " "
175 Kc.	J.11	No. 1. High selectivity.
	J.12	No. 2. " " " "
455 Kc.	J.22	Nos. 1, 2 & 3. High select. Designed for communicational research use! Bandwidth: 3.6 Kc. at 6 db., 15 Kc. at 60 db.
"	J.23	
"	J.9	Nos. 1 & 2. Standard universal. Bandwidth: 7 Kc. at 6 db.
"	J.10	
"	J.32	Nos. 1 & 2. Midget universal. Bandwidth: 7 Kc. at 6 db.
"	J.33	
"	J.39	Recommended for use in cascaded half-lattice crystal filters. Nos. 1 & 2. Midget low-gain replacement type. Bandwidth: 10.5 Kc. at 6 db.
"	J.45	
1900 Kc.	J.26	Nos. 1 & 2. Universal. Recommended in double conversion superhets. No. 3. Recommended for use in a double conversion superhet.
"	J.27	

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  - ☐ TRANSISTOR TRANSFORMERS
- (Mark X in square)



Page 19

Amateur Radio, May, 1962

Treat him with X4G gloves in future, boys of VK4.

The Division's celebrated bard, Howard 4WO, will by now be holding his chest out with pride. One Sunday night recently on a Brisbane 3rd channel, one of his poems was read in a special poets' corner session. For those who may not have heard, Howard's poems have been published in two books, one of which he has been busy editing and some printers, now where his radio gear stands.

Herb AKM has been having a little fun with music and he told all and sundry on the air recently. He seems to have incidentally, owns one of those weird electric fence gimmicks, he has made his own and. Two fingers across the forehead, he reads out the lyrics, 18 micro-amps which dropped quickly to a steady value of four micro-amps. The laugh came at next morning. First this out, but and he gave steady reading of four micro-amps. Herb was last heard propounding some theory about static electricity and friction.

Jim 4EZ has been heard dashing hither and yon over the vast expanse of south-east Qld. from Rockhampton south. One day he was at the QTIF of Frank 4FR. Another week-end he spent at Herb's at Mundubbera and the following night some uneasily hour of the morning. He certainly gets around that fellow Queenslanders' such an out of the way place quite often. He has been partly on foreign correspondents about, so foreign in fact only rarely does word reach the outside world. He has been reading out the lyrics of chaps, if you can only offer a few lines of news, do so and your effort will be appreciated after that outbreak, he's seen what happens next month. Until then, 73.

#### SOUTH COAST ZONE

Absence from 4FR for a week, a weekend, and several days on other occasions have not given opportunity of news gathering in this neck of the woods. Had an enjoyable chat about the local radio scene with a lot of very good equipment including a Heathkit 2 and 8 mxx tx, Eddydxone rx, plus many other quality items and several projects of simple construction.

Del 4R3's tx with temporary serial and rx was installed but the modulator refused. After quite a time of the fault, the modulator was but necessitated the transport of the instrument to Brisbane where Alf 60L could do the necessary at his leisure. Late last night, at the 4R3's management, the tx was received. Dall should, after a little time getting the feel of it, be heard regularly. The tx was the work of a very good technician, who deserves high praise for the excellent job done.

The representative of the 4R3 sentry up on the heights, Tex 4TX, has bobbed up a couple of times in the past few weeks. Sorry Tex if you felt neglected, but feel sure you will be able to square with them, 73, 4WS.

#### CAIRNS AREA

Six mxx activity still continues to be the main interest in this area. The latest to the band was Mickey 42XK, who is out at Gordonvale. He is running a converted 423 to a cubical quad which puts a pretty good signal into Cairns. Was yarning away the other night to Bob 4TK and 4WZ, who were in the 423. Bob 4SDJ who started his Ham career as 4DJ. He was trying out his new tx using screen mod. which was a bit of a problem. He has left the seafaring life and is now at a sawmill about 200 miles from the Fly River.

Now a talisman published somewhere to tell you think—

I never have frustrations,  
The reason is, to wit,  
I'm at first I did not succeed,  
I quit.

#### TOWNSVILLE DISTRICT

My thanks go to Claude 4UX for so ably writing this note. While I was away overseas on holidays. Know that he had once been vaccinated with a gramophone needle, fully expecting to be killed. He was then given the blue pencil. But glad to see he so ably kept the space occupied in "A.R." By his overseas, a visit, he paid to the home of GJMA at night, spent a very pleasant week-end, visiting all the Amateurs for miles and miles around. Even going to Ted 6UPO for a couple of cups of tea. He did not get too much of the new serial as he is using on 80 MC. The boys in this area have a club station night.

Whilst in Hong Kong the boys really turned it on, and as only one night was spent in port, they invited me to an evening meal at a couple of restaurants. The boys were 4R3, 6EC, 6DS, 6CL, 6EK, 6EL, 6EM, together with their wives. A very pleasant time was enjoyed in Tokyo. The boys were then to visit some of the boys whom I worked on 80 MC.

JAIDVO did all the necessary spade work in arranging my visit to all, even to the different radio factories, etc.

Coming down the Queensland coast our ship made world headlines—"suspected cholera" on board. Thanks to all the Amateurs who worried over my safety. Glad to be back home as Ausale is still the best place.

Things have really looked up while I was away, the previously published plan of formation of a new club in the north did take place. Thanks to 4UX and the others in the Burdekin area, the club is off to a healthy, and not unhealthy, start. The club is now 15 and soon to be swelled, as a class is being formed of 12 who intend to take their A.O.C.P. license. Claude, being a Scout Master, is working hard for the local Scouts to have their own club station. (Any hits and pieces necessary can be picked up at my shack, Bob).

The local radio club under the guidance of Frank 4FP again will get a class going for the budding Amateurs. So this augurs well for an increase in the ranks in the Sunshine State, as by April "A.R." I see over 40 attend classes in the southern part of the State. What has happened to Rockhampton not having classes? Get in Frank and Hal.

Owing to the pressure of back yard chores, unable to work the boys during daylight hours. Great overcast night, but I was out. That is what the "wet season" does while I was away. Even the white ants ravaged my tin house in the bush and partially destroyed the case around the multimeter. The other control now, literally millions of them poisoned.

Bert 4LB heard on s.a.b., just itching to help me get my rig going. No hurry, all those chores to be done. Necessary to see the doctor's mind. A visit was paid to Olaf VKIARV/MM on the Kuranda while he was in port and showed him the benefits of the district in daylight, while Bob 4EMF did the honors the night before. Sorry I missed VKAUS/MM while he was in port. I did not know anybody worked him 4R Cootdown on the Sunshine. Enjoyed a QSO with Middy ZS1CD the other afternoon. The local boys will remember his visit last year, he enquired after me, 73, Bob 4RW.

## SOUTH AUSTRALIA

The monthly meeting of the VKS Division was held this month to a capacity audience in the clubrooms, and took the form of a buy-and-sell night. John 5JC was in the chair and the evening was very busy. I was busy the business for the night with record speed, and after the QSL cards had been distributed by George 5RX, the entertainment commenced.

Now there is not much that can be written about buy-and-sell nights that has not already been said. The only thing I can say is, without doubt that this type of general meeting always attracts the largest crowds and the crowd present at this meeting was almost a record. So much so that the standing room was at a premium, and at times it was not quite clear whether or not human beings were up for auction or just radiators. Further the bidding had been in progress for a few minutes, for some unexplainable reason, it was decided to have a type which was a bit of a surprise. I distributed a batch of crystals that the Division had obtained at a recent disposal sale.

Gilbert 5GX, who had handed this matter in his hand, and I had the crystals from start to finish, then took over and distributed the packets of crystals to the lucky ones, and the auctioneer for the night, that debonair and shrewd type was a big success. Further the bidding, in these notes, mounted his umbrage and rode off into the corner to sulk in private. Eventually the auctioneer, who was a bit of a novice, laid back to the front of the stage and the bidding commenced once again, only to stop at 11 p.m., when not even one solitary valve socket was sold.

Of course this did not mean that the night came to an end, because when I laid a fond hope on my mind, I was told that I was just what they could do with their junk, all about nobody took up my challenge, there was still more time than I had. The boys were buying out money, car radios, etc., etc., and for all I know they may be still there yet. However, one fact stands out like organ pipes. This buy-and-sell night is without doubt the most popular form of general meeting held, as far as VKS is concerned anyway. My natural modesty does not allow me to say the matter to any extent, but when I look back on how many of these nights have been held in the past, and how many shacks they have brought down, I am sure that the boys are only say that the halo which is sprouting on top of Norm Colman and myself, is fitting the boys of the Saint Norm and Saint Pense they call us!

## OBITUARY

EDWARD A. ("Doc") BARBER, VK8BD.

Members and non-members alike of the W.A. Division, together with many members of other W.I.A. Divisions, heard with sadness and shock the news of the passing of Edward A. Barber, VK8BD, on the night of March 21.

During his long association with the Division he held every executive position possible, was mainly responsible for the re-formation of the Division after World War II., spent considerable time and energy on the preparation of the new constitution, and the election of the new officers of the Division, and his elevation, many years ago, to the Divisional Honorary Life Membership was a fitting reward for his untiring service to the Division and Amateur Radio in general.

His position as Keeper of the Adelaide Gaol, from whence he operated his station, forced him at times to assume a mask of stern and unyielding authority, which was in complete variance to his normal kind, jovial and understanding nature, and so greater tribute could be paid him than the fact that the prisoners under his control, would have been glad to see him go, and the authorities seeking permission to arrange among themselves for the sending of floral tributes to his home.

His name has been synonymous with Amateur Radio and the Division since he was first licensed in 1933, and his passing was mourned by all with whom he came in contact.

To his sorrowing wife, May, we extend our sincere and heartfelt sympathy, and hope that the bereavement time will soften the blow of his passing.

The genial face of Keith SKH (for SWI) was conspicuous by its absence when he sat at the moment at Whyalla on duty bent and will be there for a while longer. The SWI session will be carried over by the next speaker, a man of many parts, John 5JC and as Keith expects to be absent from the city of cities quite often during the coming months, it looks like a long filling in.

I very much regret having committed the sin of sins in calling Gilbert 5GX, Gil, in these notes a long time ago, because he has never been able to get over it. He has been a bit off and with his backing, he never lets up. Fancy butting into my buy-and-sell and trying to sell me a thing!

My savage friend from Norfolk Island, with the ring through his nose and the bones through his ears, Arch 5XKX, has been telling the world of his excitement whilst in the grounds that are. Judging by the publicity he must have received from the W magazines he must have spent a fortune, and to cap it all, he expects me to believe that at one of the nearby islands he discovered a new language in which there were no small words. To prove it, he has been using a lot of words like "steeekyobdo," when freely translated means "No." He added that by the time the female members of the club got round to saying "Welcome to the club," it was usually too late anyway!

Despite all the advice and stories given to me about the paying of my Amateur license fees, I have been a bit of a slacker and had to wend my weary way up to the Receiver of Public Monies. However, this week I have been a bit better. I have been told that Tom 5TL who is the Postmaster at Renmark and I quote "I recently came across a new piece of an accounting form introduced for use at all post offices, and one of my VECs decided to provide it to cover the accepting of Amateur license fees." He goes on to say that although one of my local correspondents, one of my VECs put him to the test. I would be pleased to hear the result. I mentioned the matter to Sen 5GP who has been a bit of a slacker, but he is a Nalrbe, but he has not seen any such form. Wouldn't it?

You have probably read of footprints in wet mud. The burning of the old shack and the foundations of new buildings, etc., etc. Well, along the same lines, Frank 4MZ, at the time the shack was erected Luke's (5LL) new shack was built. The shack was built on the ruins of the shack and sundry grounds, boots and cheers from the assembled gathering. What a time! The shack was built on the ruins of the shack and Luke quickly removed





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**DISPLAY TURNTABLES.** 8" model, load 112 lbs., £12 each plus tax 12½%; 12" model, load 175 lbs., £16/13/8 each plus tax 12½%; 12" model with power point, £19/13/8 each plus tax 12½%.

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**4-WAY POLARISED LINE CONNECTORS** 2" x  $\frac{1}{2}$ " diameter, 4/6 each plus tax 25%.

**ROTARY INVERTORS** 32 volts D.C. input, 240 volts A.C. output at 200/250 watts. Unit is supplied complete with voltmeter and voltage controller. Suitable for t.v., £54 each plus tax 12½%

## KEW TRANSISTOR CHECKER Type TRC-101, battery operated.

Measures:—

Collector cut-off current Ico 0-50  $\mu$ A.  
Voltage Gain A 0.8 to 0.995.  
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Diode Quality Check—Good ? Bad.  
Rectifier EP-IP (character):  
EP = 0-5 V.  
IP = 0-500  $\mu$ A.

**Meter Sensitivity:** 50  $\mu$ A., full scale  
**Scale Calibration:** B, A, Ico Good ? Bad.  
**Size:** 7" x 4½" x 3½".

**Price:** 10 Gns. plus tax 12½%.

Supplied complete with Instruction Book and Test Leads.

## KEW MULTIMETER, Type TK70B

**Sensitivity:** D.C. 20,000 ohms/volt.  
A.C. 9,000 ohms/volt.  
**Volts:** A.C./D.C. 0-10, 0-50, 0-250, 0-500, and 0-1,000.

**Milliamps:** D.C. 0-500  $\mu$ A., 0-10 mA., and 0-250 mA.

**Resistance:** 0-20K ohms, 0-200K ohms, and 0-2 megohms.

**D.B.:** (Up to 6,000 cycles) to 22 db.

**Capacitance:** 0.001 to 0.2  $\mu$ F.

**Size:** 5½" x 3½" x 1½".

**Price:** £27/12/0 plus tax 12½%

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Type 2004A straight, 7/9 doz. plus tax 25%;  
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**NEON LAMPS** Miniature, wire lead connection. Strikes at 140 volts D.C. 330K ohm series resistor required for 230v. A.C. operation. 2/2 each plus tax 12½%.

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3-pin panel socket 2/2 ea. plus tax 12½%  
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**CHASSIS PUNCH SETS.** Hammer type,  $\frac{1}{8}$ ",  $\frac{3}{8}$ ", 1-3/16", 59/8 set. Sales tax exempt

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Sensitivity: 0.025 volt (r.m.s.) per inch at 1 kc.  
Freq. response: Flat within plus or minus 1 db. from 0 c.p.s. to 2.5 Mc. Flat plus 1.5 to minus 5 db. from 3 c.p.s. to 5 Mc. Response at 3.5 Mc., minus 3.5 db. (All response measurements referred to 1 kc.)

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### HORIZONTAL CHANNEL:

Sensitivity: 0.3 volt (r.m.s.) per inch at 1 kc.

Freq. response: Flat within plus or minus 1 db. 1 c.p.s. to 200 kc. Flat within plus or minus 3 db. 1 c.p.s. to 400 kc.

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The aim of the incoming office-bearers is to make 1963 a bumper year for this Zone and an all-out effort by everyone will help them to achieve their goal.

#### NORTH WEST ZONE

Another month of QRM gone past and there is again little to report. The monthly zone meeting was held first Tuesday in the month as usual. We were pleased to welcome Peter IPA from the Southern Zone and some back-in-the-corner yards took place. Leon ZP reported that he has completed and installed another mobile unit for the Burnie Fire Brigade. Nice work Leon and we are grateful for your efforts. We also took the opportunity to say farewell to Harold TMZ who is migrating to the Southern Zone. We wish Harold all success in his new QTH.

At long last it has happened. George YXL has come up on duck tail. And putting out a very nice signal if I am any judge of s.s.b. Even at this QTH at close distance there is no hand-pend or splatter which cannot be said of all s.s.b. sigs.

Had the pleasure of a visit from those well known Kilmore identities Bert and Peg ZKU on their way to and from the south of VKY. Both appeared to be "Applied up" but in good form.

Apparently the monster, and I refer to the one at the corner, has done a great deal to sponsor absenteeism from Ham activities. We notice that most of the empty seats at meetings are taken up by missing members at ZCU. How about a night off occasionally chaps? If you read this before 1st May boys, bring along a few colour slides for the next meeting. TMX.

## HAMADS

Minimum 5/-, for thirty words.  
Extra words, 2d. each.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received at P.O. Box 85, East Melbourne, C.S. Vic. by 4th of the month, and remittance should accompany the advertisement. Call letters are now permitted in Hamads. Dealers' advertisements not accepted in this column.

**FOR SALE:** A.m. and c.w. xmtr., band-switched 80 through 10, up to 50 watts input, Geloso v.f.o. with in-built reg. p.s., 807 p.a. p.c. coupler output, commercial cabinet, meters in p.a. plate and grid, £30. Separate mod. in own cabinet, pr. 807s AB1, plate meter, £17. Will sell complete or separate. Collins 50 watt mod. transformer, pr. 15,000, sec. 7,300, excellent order, £6. W. M. Crawford, Box 142, Kingston, South Aust. VK5XB.

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**FOR SALE:** Converter and Qser 20 metres, converter consists of A.R.R.L. circuit using 6BX6s with full band-pass and vernier dial, feeds into BC-433G Radio Compass Receiver with built-in a.c. supply, £14. Command

Receivers, 3-6 Mc. and 6-9.1 Mc., in excellent working condition, £5 each. Type C Wavemeter, 1470 to 10,260 Mc., £5. Signal Strength Meter and Monitor 20 metres, £2/10/0. Antenna matching unit 20 and 40 metres, commercial finish, £2/10/0. VK3AES. Phone 28-1264.

**FOR SALE:** Ferguson Transformers, new: three Vibrator Trans. VT108 6/300v. 75 mA., 35/- ea. Two Chokes, CF106 12H/100 mA., 20/- ea. One Driver Trans., 5w. MT106 5,000/125,000 p.p., 35/-, One Power Trans./6,240 pri., sec. 300v. 125 mA., PF118, 45/-, One A & R Driver Trans., Type 545, 10w. 4,000/AB2 p.p., new, 50/-, One Q + Transistor P/S 12v., 300v. 100 mA., PS-30/12, as new, £7/1. One Pye VTRM/6 6v. dual P/S, 250v. 100 mA., £3/1. One 9v. L.F.F. Gene. £1. One 18v. L.F.F. Gene. £1. Three Q + 85 kc. i.f. Transformers, 30/- set, new. D. V. Scott, VK3DY, 174 Johnson St., Maffra, Vic.

**FOR SALE:** One AR7, excellent condition; one 22 ft. self-supporting tower with extension to 30 or 35 ft.; two 26 ft. masts; one 50 Mc. converter; one 144 converter; want offers within reason. J. N. Bradshaw, 31 Summerhill Road, E. Reservoir, Vic.

**SELL:** AR8 (M.F. sect. only, works) 240v. p.s. 6" per mag. spkr. H.F. sect. needs little attention to get working. £12/10/0. MY0361, Ext. 292 (Melb.).

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**SELL:** Hallicrafters Receiver SX28, 0.55 to 43 Mc., 6 bands, bandspread Ham bands, variable selectivity, 100 Kc. marker xtal, matching speaker, instruction book, perfect condition and alignment, £75. Panoramic Radio Corporation, Panoramic Adaptor, Type T-200, 240v. a.c., attached to above, scans 0-100 Kc., perfect condition, spare tubes, instruction book, £45. Qser BC453, also attached to receiver if required, £2/1. Receiver AR7, 140 Kc. to 25 Mc., perfect condition and alignment, with power supply and noise limiter, in-built 100 Kc. marker crystal, £30. Panoramic Adaptor, as above, attachable to AR7, perfect condition, £45. Receiver BC348-L, six switched bands to 18 Mc., in-built power supply and noise limiter, £271. Hallicrafters Receiver S-27D, 28 Mc.-145 Mc. in three switched bands, f.m./a.m., noise limiter, variable selectivity, in-built 5 Mc. marker crystal, instruction book, 240v. a.c., £35. Marconi Receiver B40, 0.6 to 30.5 Mc., five bands, turret tuned, 240v. a.c., £25. Receiver AR17, modified, 130 to 180

Mc. a.m./f.m., in-built 240v. power supply, 18 valves, £20. Harmonic Generator, A.W.A., 240v., 1 Mc., 100 Kc. and 10 Kc. markers to 30 Mc., £10. R.M.E. Preamplifier, three 6J6s, 40 db. gain, bandswitched all Ham bands, gives great lift, 110v. a.c., instruction manual, £15. R.M.E. Mobile Converter, band-switched and bandspread all bands, in-built noise limiter, 6 or 12v., output 1600 Kc. to car receiver, £20. Transmitter AT14, 2 to 21 Mc., bandswitched, v.f.o. or crystal, totally enclosed, 21 tubes, 8 meters, input 240v. a.c., converted to plate modulation, perfect, high power signal, instruction book, £75. Transmitter AT21, 1.5 to 16 Mc., v.f.o. or crystal, 240v. a.c. power supply, input 120 watts to pair 807s, in-built plate modulators, £25. Petrol generator, 2 1/2 kva., output 12v. d.c. and 240v. a.c., £30. A.W.A. 50 Kc. Filter Q50084, 7 tubes, £12. Trimax modulation transformer TA908B, 150w. audio, multi-match, new, £7/1. Bendix Frequency Meter, LM10, complete less book, £20. Receiver BC348-R, original, £17/1. AT21 power supply, complete, £10. A.W.A. 3BZ Receiver 12v. d.c. 200 Kc. to 10 Mc., £12. 3BZ Transmitter, £4. 5" CRO £12. 3" CRO £9. 2" CRO £8, TS-34 £10. Many other items and parts: Marconi Signal Generator 10-300 Mc., Philips Capacity Meter, Valve Tester, Crystal Calibrators, Triplet Signal Generator, 100 Kc. to 120 Mc., Mobile Transceiver AT2B 12v. d.c./240v. a.c., Meters, Receiving Valves, Transmitting Valves, Transceiver 122 perfect, various Transformers, Chokes, A.W.A. Valve Voltmeter, Automatic Call-Sign Sender, 8.5 arias 8.5 amp. 200-300v., Command Receiver 190 Kc., 1.5 Mc., 3.0 Mc., 6 Mc., 9.1 Mc. etc. Command Transmitters, Weston 20,000 o.p.v. Circuit Tester, 522s, Selenium Rectifiers, Selsen Motors 240v. and 50v. a.c., Receiver R89ARN5, 11" Dual Tube for three element 20 metre Beam, Vibrator Supply 12v. d.c. input 240v. d.c. out. Field Strength Meter 1-95A 100-155 Mc., etc. Dr. Alec Dan, 10 Kulgoa Road, Bellevue Hill, Sydney, N.S.W. FM 1055.

**SELL:** Radio Amateur Call Books. Foreign section Spring-Summer 1961, 15/-; U.S.A. section Spring 1961, 10/-; VK-3AWS, 11a Maud St., Ormond, Vic. Phone 58-2149.

**SELL:** Swap: A.S.T. Supertracer, C.R.O., Mod., Pwr. Supplies, Valves, Parts of all types, V.h.f. Gear, Panadaptor 450-470 Kc. i.f. No dealers. 97 Birkett St., Bedford, W.A.

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0.022 µF. Sprague	1/- each

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Sensitivity: d.c. 20,000 ohms/volt, a.c. 10,000 ohms/volt. Ranges—d.c. volts: 6, 30, 120, 600, 1,200v.; a.c. volts: 6, 30, 120, 600, 1,200v. D.c. current: 60 µA., 6 mA., 60 mA., 600 mA. Resistance: 10K, 100K, 1M, 10M ohms. Capacitance: 0.001-0.2 µF., 0.0001-0.01 µF. Inductance: 30,000H. Decibels: -20 to +17 db. (0 db.—0.775v.—600 ohms). Dimensions: 4 1/2" x 6 1/2" x 2 1/2". Weight: 1.3 lbs.  
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## FERROCARAT VACUUM TUBE

### VOLTMETER

V.T.V.M.	£19/17/6 inc. tax
H.V. Probe	£3/5/0 inc. tax
R.F. Probe	£2/10/0 inc. tax

## ECKO NO. 88 TRANSCEIVER

Portable, xtal locked 4 channel, 40 to 43 Mc., 14 valves, 1L4, 1T4, 3A4, etc., 12v. 3a. Input power supply. Less crystals, mike and headphones, etc.  
To Clear, £6/10/0 each

## RECORDING TAPE

TMK "Syncretape" 7" Rolls, PL-12 (Standard)	£1/16/6
TMK "Syncretape" 7" Rolls AC-18 (Long Play)	£2/10/6

## V.H.F. RECEIVERS

Type R89/ARN-5A. 300 Mc. Valves: seven 6AJ5s, two 12SN7s, one 12SR7, one 28D7, six relays, and three crystals of 6522.9 Kc. As new, £5 each

## MULTIMETER Model 200H

20,000 ohms per v. d.c. 10,000 ohms per v. a.c.



Specifications:  
D.c. volts: 0-5, 25, 50, 250, 500, 2,500.  
A.c. volts: 0-10, 50, 100, 250, 500.  
D.c. current: 0-50 mA.; 25, 250 mA.  
Resistance: 0-60K ohms; 0-5 meg.  
Capacity: 0.01-0.2 µF. (at a.c. 5v.); 0.001-0.01 µF. (at a.c. 250v.).  
Decibel: minus 20 db. plus 22 db.  
Output range 0-10, 30, 100, 300, and 1,000.  
Battery used: UM3 1.5v. 1 piece.  
Dimensions: 3 1/4 x 4 1/4 x 1-1/8 in.

Complete with internal battery, testing leads and probes.

Price £5/17/6 inc. tax.

## 1155 GENEMOTORS TYPE 34A

Input 9.5v., output 225v. at 110 mA. Complete with relays and filters, in case. Weight 30 lbs. 19/6 each. 5/- handling charge.

## SPECIALS!!

Pye double bulkhead mounting Chassis Co-ax Connectors 2/6  
Pye Co-ax Connectors 4/- pair  
English Co-ax Connectors, plug and socket, suit 1/2" cable, 4/- pair. Right angles 4/- each.  
Crystal Sockets, DC11 2/6  
Crystal Sockets, FT243 & miniature 2/6  
Jack Boxes, SCR522 type, contains 10K pot and knob. Size 3 1/2 x 1 1/2 x 2, 3/6  
AR8 Cables, 10 ft. long, 8-pin plugs attached 10/-  
High or Low Imp. Headphones, 12/6 pr.  
Morse Key and Buzzer Sets, new, 12/6  
SCR522 28v. Genemotor power supply, 20/-, 5/- pucking fee.  
English Filter Chokes, 40 mA., 100 ohm resistance 3/6 each  
"Scope" Soldering Iron, to clear, 45/-; complete with transformer, £4/10/0.  
Carbon Microphones 12/6 each  
Carbon Mike Transformers, 12/6 each  
Vibrators, Oak/M.S.P. 6v. synchronous 7-pin AV5211R £1 each  
Octal Plug and Socket, American Ampenol, in metal screw case, 8/6 set

## 8 Mc. MINIATURE CRYSTALS

Band-edge market Miniature Crystal and socket, £2.

## TANK WHIP AERIALS

15 feet long. Four sections. 35/- to clear. Personal shoppers only.

## SPEAKER PLUGS

Small bakelite 4-pin and socket, 1/9 pair.

# HAM RADIO SUPPLIES

5A MELVILLE STREET, HAWTHORN, VICTORIA

Phone 86-6465

Money Orders and Postal Notes payable Nth. Hawthorn P.O. 5/- Packing Charge



# ANTIFERENCE

## 'WINCHMATIC' TELESCOPIC AND PORTA-TELESCOPIC TOWERS

### 'WINCHMATIC' TELESCOPIC TOWERS

Another Antiference product — triangular sectioned telescopic guyed towers for TV and two-way radio installations. These towers are available in heights of 57 ft., 67 ft., 80 ft. and 100 ft. and suitable for erection by two men. The base plate is less than 2 ft. square.

The 'Winchmatic' Telescopic Tower is available in either galvanised or painted finish, fitted with built-in winch for ease of erection and so designed as to allow the aerial to be oriented for direction after the tower is fully extended. No Sales Tax.



### PORTA TOWERS

Also manufactured is a portable model "Porta Tower," to fit on to vehicles (shown below), in heights of 50' and 65'.



# ANTIFERENCE

(AUSTRALIA) PTY. LTD.

For further details contact your nearest Antiference office:

N.S.W.:  
Sydney: 131 Regent Street, 69 6167  
Wollongong: 123 Kiera Street, B 2311 B 2312  
Newcastle: 12 May Street, 61 5236-7-8  
Orange: 341 Anson Street, 4218

A.C.T.:  
Canberra: 27 Yallourn Street, Fyshwick, 94068  
VIC.:  
360 Smith Street, Collingwood, 41 7028  
S. AUSTR.:  
12 Deacon Street, Richmond, 57 8016

#### FACTORY REPRESENTATIVES

Q.L.D.: K. H. Dore & Sons, 505 Boundary Street, Brisbane, 8 0280; and of 28 Church Street, Townsville.  
W.A.: Pen Industries Ltd., 155 Brisbane Street, Perth: 28 3221-2-3.  
TAS.: Homecrafts (Tas.) Pty. Ltd., 199 Collins Street, Hobart, 2-2711; and at Launceston and Burnie.